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Dominion Dental Journal

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No. 1.

Original Communications

PRELIMINARY DENTAL EDUCATION.

BY FRANK WOODBURY, HALIFAX.

Read before Canadian Dental Association, Sept. 6th, 1904.

Education is the qualifying process by which the individual is enabled to grasp the problems around him, and occupy the field of his chosen activity with credit to himself and comfort to those whom he proposes to serve.

In its broadest definition it is character building, the development of the individual for the purpose of good citizenship. In its processes it provides a mental gymnasium suited to the age and stages of development of the pupil, by which he may become possessed of mental, moral and spiritual fibre and strength.

The man whose general education is broad, whose mind has been rounded out by the drill of consecutive and close thinking, who can arrive at conclusions logically and rapidly from given premises, who can intelligently grasp the questions of the day, either general or professional, will (everything else being equal) stand high in the esteem of the public and his chosen profession.

General education gives poise, breadth of outlook and grasp of detail.

If we grant equal brains to each, all that differentiates the master builder from the hod carrier is culture, first general, then technical. All that for ever bars the man in your laboratory from standing beside you in your profession is the lack of mental training that would enable him to grasp the principles and details of the position.

By the same reasoning, and for the same reason, a profession is held in esteem by the public.

I take it for granted that dental surgery is a specialty of the medical profession, and is comparable to any other branch of it, in its demands upon the literary, personal, social and professional qualifications of its members.

The public holds in great honor the art and science of healing and restoring the human body. It is well that it is so. There is no one of the learned professions upon which the public looks with such profound respect, for the reason that they are compelled to trust it so implicitly.

The medical profession have made much of this fact, and in the past have not hesitated to surround themselves with much of mystery and an air of profound learning. (It has been hinted that sometimes it hid much ignorance.)

The same atmosphere of profundity has not surrounded dental surgery in the public thought. One, and the main, reason, is found in the early establishment of separate institutions of learning, and a separate degree—with inferior standards. The cabalistic M.D. would have saved dental surgery many a serious struggle, and thrown the mantle of professional aristocracy around it. We have not had the prestige of the other profession, and consequently have not enjoyed the same repose in the mind of the public. One comfort is ours, however. The place we do occupy has been earned by real merit, and in proportion as the standards of education have been raised, so the profession has been elevated in the public mind.

The standard of preliminary education gauges the right of position to any industry or profession.

There is no question but that if the dental surgeon is to stand the peer of other specialists in medicine and surgery, he must be equally well educated.

"A profession advances according to the all-round scholarly students who enter its ranks." Let us encourage our men to pursue a university course in arts or science. The profession and public will be the gainers.

The question is upon us then, What should be the standard for the preliminary education of the dental student?

The problem is not, How much educational qualification is necessary to protect the public, preserve and raise the status of the dental profession, but, What is the minimum standard that at the present moment will qualify a student to pursue his college course with credit and ease, and render him a good citizen, as well as a good dentist?

The question of setting a national standard is a much more difficult one in the United States, and problems present themselves there of which we need make no account. We must meet the problem in Canada in our own way, and consider it as it exists at the present moment.

1. *From the Standpoint of the Provincial Boards.*—The large majority of the dental boards require a preliminary examina-

tion. In none of these does the standard fall below the tenth year of the Public School course, or, in other words, the second year of High School. The remaining boards accept the matriculation examination of the dental college from which the applicants come, provided that the college is on their recognized list, which are supposed to admit only students who have passed the second year or tenth grade in a High School. It is greatly feared that multitudes of students climb into some colleges some other way than by a High School.

2. *From the Standpoint of our Colleges.*—In Canada no conflict exists. All our colleges require a faithful and true examination or presentation of valid certificates of education. They are in full sympathy with, and largely under the control of, the profession.

3. *From the Standpoint of the Student.*—This is exceedingly important. The ordinary boy in our country has passed the second year in High School or academy while sixteen years of age. He is in the height of the second period of adolescence, when the mind is almost abnormally acquisitive and imaginative, with a little knowledge and consuming conceit. He has not yet waked up to the true purpose of life. In his school life he has just fairly begun the work that is calculated to develop and broaden his life. Up to the end of his first year in High School, foundation memory work has been almost his sole occupation. Now he is about to apply them and use his brains. Will anyone claim that he is mentally prepared to pursue the work of one of the learned professions? As I know High School boys, they are not. It is psychologically wrong. It is morally wrong. It is our business as scientific men to study the mental condition of our students before they are allowed to leave the pursuit of general knowledge.

One more year at school makes marvellous changes in the mind. The seventeenth or eighteenth years in the average youth develops more mental fibre and solidity of character than in much longer time at any other period of youth.

The universities recognize this. It is not by chance that the standards of matriculation into almost all the professions are made comparable and practically equivalent to the third year in High School.

(It is right to add, parenthetically, that the introduction of manual training in our schools will add materially to the education of the dental student. When this is within the reach of all, it should be made a subject for examination, but it cannot now be considered as a practical issue.)

4. *From the Standpoint of the Public.*—Everything else being equal, the public are better served by the educated man. Their judgment of the qualification of an individual is formed largely, not wholly, by his ability to express himself in good,

terse English, and show that he is not a boor in polite society. The public have a conviction that a man who has reasonable educational qualifications cannot be altogether an ignoramus in his profession.

5. *From the Standpoint of the Profession.*—It is not necessary to keep the standard low to secure men to fill our ranks. The history of the past few years has abundantly proven this. There is an abundance of worthy young men who are willing to meet any reasonable preliminary qualification. The educational facilities in our Dominion are so great that any man who is worthy to enter the learned professions can qualify himself. It is no more inconvenient for the dental, than for the medical student, and just as necessary.

6. *From the Standpoint of our Legislatures.*—There is no part of the qualification of our men that creates more trouble than the establishment of separate and distinct qualification for matriculation. Each province is insisting on the pronouncement of its own shibboleth. Is it not time that this foolish and unneighborly quibbling ceased? Why can *we* not, whatever others may do, become national in our standards, both preliminary and professional? If a Dominion standard were agreed upon, our legislators, I believe, would not pass special legislation, and cause so much humiliation to the profession.

The proposition to establish dental reciprocity between the provincial boards, or a central Dominion council, at once suggests a common educational standard for matriculation.

Whatever position the provincial boards may take regarding men who shall practise within the boundaries of their own province or territory, there must be some reasonably high standard adopted for those who desire to pass beyond the bounds of their own province to practise.

I believe this standard should be matriculation in arts in any chartered university or college, whose standards are not lower than the third year of the High School course, with classical qualifications. To protect us closely, this clause might be added: "In no subject falling below 50 per cent.," although I do not insist that it is necessary, but possibly advisable. Specified equivalents may be accepted in lieu of this.

The chartered university has the confidence of all. It appeals to the good judgment of all. Its matriculation certificate is the passport to every one of the learned professions.

Let us take our stand in the front rank, set our standards with the best, and claim and fight for our position and our rights.

Remember that the standard of preliminary education gauges the *right* to position in any profession.

DISCUSSION.

DR. CLINT, Winnipeg.—In opening the discussion on the paper just read by Dr. Frank Woodbury, before taking up any specific phase of the question of preliminary dental education, I would first take the opportunity of saying that the essayist has placed us under obligation to him for the broad grasp and common-sense view he has taken of the subject. In dealing further with the question, we are simply bringing our personal conviction, which the experiences and observations of the past have developed.

The subject is one which has occupied the attention of all who have had the interests of the dental profession at heart for many years. Others have had the subject under consideration from a different standpoint, and we fear we would be doing them an injustice if we would say that unselfishness was a very large factor in their handling of it, because of their connection with institutions whose primary object may have been the giving of a dental education, but also another, in which dividends cut quite a large figure, the numbers of those attending the institutions referred to being very much augmented by the low standard that they demanded.

In speaking of the other than Canadian institutions as I have done, I do not wish to leave the impression that the dental profession has not received much that was valuable from the higher class American institutions, and many individual members of the profession connected with them, by their close investigation and diligent study, have added strength to heretofore weak points.

The struggle now going on in the Association of Dental Faculties for a higher preliminary requirement will, I believe, remove one of the most serious drawbacks to advancement of the dental profession in America.

The essayist has rightly stated that we in Canada have, from the early history of dental law on the subject, demanded a comparatively high standard, so high, indeed, that many young men, in a hurry to get into dentistry, have lost sight of their best interests by taking up the subject where lower standards prevail.

Personally, I heartily endorse every sentiment so beautifully expressed in this paper, and particularly would I hope that the time might soon come when one standard, both with regard to preliminary and final examination, would obtain the right to practise dentistry in the Dominion of Canada, from the Atlantic to the Pacific, and that second to none anywhere.

The following is a quotation from an article on the subject of preliminary dental education, published in the August number of the *International Dental Journal*, by Dr. Leo Green, Dean of the Dental Department of the University of California, in which he quotes Dr. Harry Carleton as saying: "There are

approximately sixty dental schools in America, and, to quote from a recent compilation, three have no express admission requirements; eighteen have purely grammar school subjects for entrance; eighteen more first year standing in High School work; eleven have requirements covered by two years of High School work, and six require a three year High School course; none of them as much as is required for admission to any reputable college."

Numbers of these men, after graduation in other than Canadian colleges, conclude that they would like to practise dentistry in some of our Canadian provinces, and the injustice to our men who fill the Canadian requirements is too plain to be lightly considered, and warrants us taking the most stringent measures to protect them in their well-earned privilege.

Dentistry being an art as well as a science, it is desirable that the young man who wishes to become an expert dentist cannot begin too early in life to put education into his hands. It is all very well that the mind be able to conceive, and see the object to be obtained, but it is quite another thing to be able to select or devise the means with which to bring about the end in view.

Anyone present who has occupied the position of a preceptor to a student will bear me out in this. Hence the introduction of the manual training system into the Public Schools of our country cannot be too highly commended as a very important factor in the early education of the prospective dental student. In fact, unless he has the natural mechanical endowment of a reasonably high order, his mastery of the theory of dentistry is, in my opinion, the smaller part of the effort necessary to become a skilful dental operator.

DR. COWAN.—To determine the education which a dentist should have, it is necessary to discover what education will do for a man, and then discover how much of that it is necessary for him to have in order to fit him for the position which he as a member of the dental profession is entitled to. I am going to withdraw that, because I believe that the dentist has more to consider than the dentist alone; he has more to consider than even himself; he has his patient to consider, and he has his profession to consider. He owes a duty to his profession, and I believe that a man in this profession should so qualify himself that he shall lead, and he owes it to his profession to endeavor to put it on a higher plane than it is. At the present time we are far from being perfect, and will admit that we should endeavor to put our profession on a higher standard, and that we should all be in a position where we will be able to lead.

Our profession is also one which enables us to qualify ourselves for leadership, because we are scattered all over this country, and we are in a profession which enables us to be a leader in society, or politics, and we can also qualify ourselves to lead in

some of the specialties of our profession. We can, therefore, all start as leaders, to a certain extent at least.

Now, I am not going to discuss the question of education, because that is a very broad subject, and I will simply glance at a few of the things which education will do for us as they apply to dentistry.

In the first place, what will education do? I should say, first, that it will enlarge the capacity of the mind so as to enable us to receive new ideas and apply what we have received. Do we not need something of that kind in our profession? Are there not new ideas to be received and applied in our profession? Why, the whole profession is one great big new idea broken up into a dozen different fragments. It has been one new idea for the last fifty years. Our minds, therefore, should be trained so that we will be able to receive these new ideas and apply them thoroughly and properly.

Then, too, education will enable us to think. Now, what is thought? Thought is simply the comparing of one idea with the other, and the man who has only one bit of knowledge has only one thing to compare with, while the man who has a dozen different pieces of knowledge can think in a dozen different ways, and consequently apply what he has received in a much better way. How easy it is for the most of us not to think, and how important it is that we should go on some particular line. It is simply because thinking is difficult, and because of the fact that our knowledge is defective. That is the sum and substance of the whole thing.

Education, too, gives ambition. Did you ever know an educated man but what had ambition—had the ambition to be seen by the public not as a failure but as a successful man, and he is more desirous of the honor of success than he is of the financial side of success. That is a fact. Is there anything that the ethical dentist desires more than honorable ambition in the profession? Is there anything that our associations have been denouncing more than commercial ambition? I say, if we wish and we desire to progress, and if we are going to progress, we must have honorable ambition and do away with commercial ambition.

Education, too, will give self-confidence. Now, I do not mean that a man shall be vain or conceited, or have an idea that he is a greater man than he really is, by using the word "self-confidence." As a matter of fact, to overestimate ourselves is to show our ignorance. With education you discover your powers, you know what you can do, at least, you know far better than if you had not educated yourself to that. The doing of things in this way is not such an awful difficulty, but it is a mighty difficult thing to make up our minds to do it. We do not like to start a thing simply because we do not know our own powers. We have not discovered them. We have not educated

ourselves properly, and do not know what we can do. If we educated ourselves properly we would have more confidence in ourselves and be able to do our work better.

Another thing that education will do for us is that it will give us culture and refinement. I suppose there is not a man here but will admit that the cultured man is the educated man and *vice versa*. Do we need culture and refinement in the practice of our profession? I suppose that each one of you has a practice like my own; I suppose that three-quarters of your patrons are ladies and that we are associated with them the most of the time, and it is therefore necessary that we should have culture and refinement, and I say it is not right to our profession that we should stand on a lower plane and do any injustice to them. We should place ourselves in a position where they will not feel that we are intellectually beneath them, but they will feel that we are on an equal with them in culture and refinement.

Now, I have been exceedingly pleased to-day to notice that both of these gentlemen who have given us addresses have taken a stand in favor of higher education. From my friend here from Paris, France, I understand that in France their educational system is increasing all the time. I have come to the conclusion that they must have a very high standard of education, because I think that the most refined men and women come from France. This indicates to me that they must have a high standard of education somewhere. I don't care whether in the home or at the school, I don't care where they get their education, but it seems to me that they must have a high standard of education there, or we would not have the cultured and refined people coming from the country. As you know, France occupies to-day the position that Greece did in the ancient times, the position that Athens occupied. Athens was then the city of learning, and belonged to one of the most cultured and polished nations in the world.

Coming down to our friend here from Halifax, we find him taking a very high stand, and I think he is quite correct. And again, the same thing will apply in regard to what I said of Paris, because we all know what the school system in the Maritime provinces is. I suppose some of you have seen the kind of life we have in Western Canada, and will think that we are away behind the times, and you will no doubt think that we are uneducated, ill-bred, and unmannerly class of people up there. I wish to tell you a little incident that occurred the other day. There was a gentleman who had come up there looking for land, and I saw him standing on the corner with his hands in his pockets doing some hard thinking. At last he said to me: "Do you know what I was thinking about?" He says, "I have come to the conclusion that you have the best dressed women and best educated men on this continent." Possibly, after all, some of these things that you have heard and some of these pic-

tures that you have seen of life in the West are not altogether true. We have already taken the stand, a very high stand, in education not only generally but professionally in the practice of medicine and dentistry. Our standards are put up high and I want to keep them there, and I can say that at present they are as high as we can get them, and we have had a great deal of difficulty in getting them there. I may mention one little difficulty. One of the most prominent members of the Legislature got up and said, "I don't think these fellows should have anything. What is dentistry? What are dentists? Just a lot of mechanics." And we got knocked out at that time. It was not very long until I happened to be the party to give him the experience. He came into my office with a tooth that was bothering him, and he wanted me to attend to it for him. I told him that there was a mechanic down the street practising blacksmithing, and he had better go down to him, and he would attend to it for him. He then started in to do some thinking, and he has been doing so, I think, ever since. Our standard is made, and no matter what you gentlemen will do, we are going to keep it there.

DR. MCINNIS.—Mr. President, the subject of preliminary education for the dentist is one which may indeed call for our serious consideration and attention. I was sorry that I was not here in time to hear the paper of my friend from Halifax; but I wish before going any further to congratulate Mr. Godon, of Paris, upon the excellent address he has given us, and to assure him that I, as one of this audience, have a great deal of pleasure in seeing him here, and of learning the progress they are making in France, and to have his ideas as to the preliminary stand which should be required in France and America.

There is a feature in connection with preliminary education in France which commends itself to me at once, and this is the feature of manual training. The advances which manual training is making as a branch of preliminary education are, as you may know, great, not only in our schools here, but in the schools of the republic immediately to the south of us. I will say, before going further, in regard to the manual training side of it, that I am entirely in sympathy with all that has been said as to the matter of preliminary education for the dentists. There is too much of the time of the country being taken up with a class of education, preliminary education, if you wish, that is apparently of little use to us mentally or commercially. I have had at different times in my own province to state it as my opinion that there was entirely too much free High School education, and I believe such to be the case. We are in this anomalous position of giving to our young people, our farmers' sons and mechanics' sons and the people generally of the community that class of free education which entirely unfits them for their natural position in life. That is one difficulty that we are facing from an educational standpoint. We have, in the West, farmers' sons, going into

the towns, receiving a free education, and with what result? Educating every one of them, and taking them off the farms, instead of having them remain on the farms and till the soil of the country. The Government of Canada is paying large sums of money and employing agents to bring people out here to till the soil, and paying last year about one-third of a million dollars —for what? To get people from other countries to come in here and farm the greatest land that God ever gave any nation. What are we doing? We are taking the very best farmers out of the country. We make dentists of some of them, business men of some of them, and other things, and the large proportion of them are going out of our country. You know that from your western province your young men are going over to the States, and are going into other fields of life. It is my opinion, and I wish to state this as my opinion, that that system of education which shall be called the best system of education in any country, is that which fits the youth of the country to earn their livelihood out of the natural resources of the country, and to be good citizens while so doing. (Applause.) This is my opinion of what is a good system of education. I say, then, that as a whole Canada is to-day expending entirely too much money upon free higher education. But to return to the position of manual training in connection with dentists. A year or two ago, about the time we were thinking of establishing in the Province of Manitoba an agricultural college and things of that kind, I was interested in the matter, and I took the opportunity of visiting some of the schools of manual training and some of the agricultural colleges throughout the states to the south of us, and I learned some lessons there upon the matter. I found, in looking over the manual training schools, the chief manual training school, or as it is called in the West, High School, that of the city of Chicago, that they turn out an average of about three hundred students every year. I may explain—I suppose many of you know—that this school gives them the ordinary High School subjects, and at the same time gives them what is called a High School manual training. They learn there what the use of metals is, and how to manufacture things into different forms, and they make them mechanics and all sorts of things. They also get a course of engineering—just what you would expect in any High School manual training. I thought as I looked it all over what an ideal preliminary education that was for the dentist. Then I began to enquire what became of all these students, and found that these men who were so thoroughly prepared in my opinion—of all these men turned out at the rate of about three hundred—less than two per cent. were ever known to enter dentistry as a profession. That seemed to me rather remarkable, and I have not yet been able to explain it, except it was on account of the low standard of matriculation required in American colleges of dentistry. It is just possible that that may be

the explanation why these colleges are filling up rapidly with young men of lesser education—preliminary, shall we say—those who do not care to take such a lengthy course to prepare themselves. There is something in that, but I do not know that that furnishes the full explanation. However, in the main, I do agree with the proposition that the preliminary standard of education for dentists should be reasonable. I further submit that the idea of Dr. Godon, of Paris, is correct, that the coupling of the education of the High School with the education of manual training has an additional benefit to the dental student, and I do further submit that the High School course as at present obtained in its fulness, is not by any means a necessity. Some portions of it, no doubt, would be beneficial, but that class of education for the dentist which, in my opinion, would be most beneficial would be the extension of the course, and let our earlier courses of our schools combine with manual training, and form a sort of completion of the High School course in order that we may have them thoroughly fitted for the work. I must apologize to you for having taken up so much of your time, but still we are all agreed with each other that a high standard is to be set up, and let us not lose sight of the fact that the high standard may be of such a character as it will be of little use to us.

DR. MAGEE.—I heartily endorse every word that the reader of the paper, Dr. Woodbury, has expressed, but I am diametrically opposed to the statement that Dr. McInnis has just made that the education which is received by the High School, or that which is practically the same thing, matriculation in a recognized university, is not an essential, as, having been fortunate to have a matriculation in our own university, I do not know of any one thing I could leave out from that that I do not need now. (Applause.) I could not quite grasp what he meant while Dr. McInnis was talking about the education which was being received in the schools as being unnecessary, because it induced men to leave the farm and engage in some other occupation. But if that is the way in which our students are to be educated—and it really does not make any difference how they receive the education—and if that is the only means of getting it, that is the place for them to get it.

I will not try to say anything more, but I want to say, if it is any benefit to the students of this Dominion, that just a short time ago, in St. Louis, I had the pleasure of rooming with the Chairman of the National Association of Dental Examiners, and he told me that they had agreed in the Council to follow a four-year course. He thinks that after the experience of a year or two, all those colleges that want to go back to the three-year course will come right back again to the four. He doesn't think there is any question with regard to that at all.

DR. THORNTON.—Mr. President, I think that we can say that we have enjoyed to the very fullest extent Dr. Woodbury's talk,

as also that of our distinguished friend from Paris. As I listened to him I enjoyed very much his manner, which is very characteristic of the French language, and as I listened to him I could not but think from his manner of address that he must be a master in that language.

Dr. Clint, of Winnipeg, quoted from a paper, which you, Mr. President and some of us heard read by Dr. Carlton in the meeting in Chicago a year or two ago. Dr. Carlton took the position then that dentistry would be better served if a dentist were first a graduate in arts. I may be permitted to say that the Dean of the Dental Surgeons of Ontario took the ground, which was endorsed by a large number of men there, that it was to carry a logical argument to an illogical sequence, and it was possible, to use another classical expression, to put the hay so high in the racks that the lambs could not reach it. (Applause.) That means that the time necessary to carry men on to graduation in arts is so great that there is not the time necessary to educate a man to the extent that a man should be educated to enter the profession of dentistry.

DR. PEARSON.—Mr. President, ladies and gentlemen,—It gave me a great deal of pleasure to listen to Dr. Godon, of Paris. I had the pleasure of hearing Dr. Godon in Cambridge, in 1901, and my only regret is that he has not told us more of the work that is being done by the International Federation on Education, because I think that we here in Ontario want to know a great deal more of the work that is being done by that federation. We are in an unfortunate position, I think. We are taking a great deal of trouble regarding our preliminary education, we are developing preliminary education, which is properly in the line of the work; and yet we are not a united Dominion on dental education. We have no possible means of having a representative on this International Federation on Education, and we have no connection whatever with it. We have two or three schools in this Dominion of ours, and it is a very necessary condition for the country, for the province and for the Dominion itself, regarding the standard of the Dominion in its comparative position with other international institutions in dentistry; it is a necessary condition that our institutions and our societies should be represented on this International Federation on Education, and I do not see why it is not. It seems to me, however, that we can never get that representation until we have a united Dominion in educational matters (applause), and give a duly elected representative to the International Federation on Education.

DR. WOODBURY.—I want to add my tribute to the splendid address which we have received from Dr. Godon, of Paris, and it was with much gratification that I listened to him, and he has expressed the very ideas which have been expressed by most of the gentlemen who have spoken, as well as my own. I

will detain you but for a moment, as I only want to say this, that it is my opinion, and it is my impression that we do not want less classical education; we do not want gentlemen in our profession who will speak less classical English; we do not want men who have a small outlook upon the literature of the world, and who are less able to grasp the questions of the day and of their profession; but as I expressed in parenthesis in my paper, and which endorses the opinion of Dr. McInnis on the question of manual training, as soon as it is practicable and so soon as it is available, we must have our men better trained manually. This is all I have to say. I thank you, gentlemen.

THE PRESIDENT.—I want, with the permission of the Association, to interject this one idea into this discussion, and it is a remark which I have made frequently to the classes in our own institutions, that there is no calling in life that I know anything of, except perhaps that of literature, in which general culture has as large a commercial value as that of dentistry (applause) and that is, of course, following along the line of thought which Dr. Cowan expressed, that we are associated by the hour, or two or three hours at a time, with cultured people, and the dentist certainly ought to be able to keep up his part of the conversation with the most cultured people whom he meets in the practice of his profession. In accordance with the instruction of the Association, last night, I sent the following telegram to Dr. Johnson: "Dr. Johnson, Commercial Building, Chicago. Three hundred members of the Canadian Dental Association present greetings, and congratulate Dr. Johnson on the high position to which he has attained in his profession."

SIX YEARS' WORK IN ORAL PROPHYLAXIS.

By D. D. SMITH, D.D.S., M.D., PHILADELPHIA, PA.

The term oral prophylaxis, so recently injected into the vocabulary of dentistry, is endowed with a meaning which as yet seems not well understood.

Prophylaxis is quite commonly confounded with prophylactic, and is used by speakers and writers interchangeably with it, when, in fact, the two words have quite separate and distinctive significations. These terms are also used, apparently without discrimination, as synonyms for asepsis, oral hygiene, oral massage, and whatever is supposed to ward off disease of the teeth.

One dental writer says, "Prophylaxis has invaded the domain of nearly every disease, and its science and practice is daily increasing and its field of usefulness becoming better known."

Prophylactic measures may be employed to ward off some diseases when preventive remedies, from experience, commend themselves, or when experimentation in this direction seems warranted; but to affirm that "*prophylaxis* has invaded the domain of nearly every disease" seems a confusion of terms.

It is to be hoped that the science of prophylaxis is becoming better known, but it cannot at present be said that prophylactic remedies or the prophylaxis treatment is "well understood" in dentistry, or that either is applied or practised as a science.

In defining the terms prophylactic and prophylaxis, we would emphasize the fact that prophylactic is a word used both as an adjective and as a noun, and that it relates to therapeutic *remedies*, which may be administered as a preventative of disease. Prophylaxis is a verb, and relates to remedial or preventative *treatment*. The dictionaries generally pointed to the signification as here given when the first paper on this subject was prepared and read in 1898, under the caption "Prophylaxis in Dentistry." Only one has been found to give prophylaxis any other meaning; this, as follows: "Prophylaxis, preservative treatment for disease; conservation;" from which one would naturally infer that prophylaxis preserves and conserves disease, instead of preventing it.

Webster's Dictionary, 1901 edition, defines prophylactic as follows: "Prophylactic, a *medicine* which preserves or defends against disease; a preventative;" and "prophylaxis, the *art* of preserving from or of preventing disease. The observance of the rules necessary for the preservation of health; preservative or *preventative treatment*."

Worcester gives: "Prophylactic, an adjective, preventing disease; preservative." Prophylaxis not defined.

The Century: "Prophylactic, *n.*, pertaining to guarding; precautionary; keep guard before; anything, as a *medicine*, which defends against disease; a preventative of disease;" and "prophylactic, *a.*, preventative; defending from disease, as prophylactic doses of quinine." (That is, treatment by therapy; therapeutic treatment.) "Prophylaxis, the guarding against the attack of some disease;" example: "The germs do not appear to be very tenacious of life, so that an efficient prophylaxis may be readily exercised."—*Science*.

Standard Dictionary: "Prophylactic, any medicine or measure efficacious in protecting from disease." "Prophylaxis, preservative or preventative *treatment* for disease; especially a particular form of disease in an individual."

Briefly, then, prophylaxis is an art or a surgical treatment, involving manipulative effort, as distinguished from the administration of a systemic medicament or a therapeutic remedy. Hence, oral prophylaxis implies surgical instrumentation or treatment of the mouth and teeth in contradistinction to a germicide, a

wash, or any form of medication for the prevention of disease in the oral cavity.

Although the title of this paper is "Six Years' Work in Oral Prophylaxis," the time really covered in developing the treatment, by the author, embraces a period of ten years. Experiments were carried forward on members of my own family and among friends for four years prior to the reading of the paper on "Prophylaxis in Dentistry," referred to above, that theories might be verified before giving any publicity to the treatment. The results were so satisfactory that in the beginning of the fifth year it was determined to force recognition of it in general practice, little dreaming what astounding revelations were to follow.

In reviewing the subject at this time, it will be my endeavor, as in former papers, to present some of the remarkable phenomena which appear as unvarying results, from a consistent and intelligent prophylaxis treatment of the mouth and teeth. While these results are surprising, almost startling, to one who has never witnessed them, they are but the logical and inevitable outcome of this system of caring for the mouth and teeth.

PROPHYLAXIS TREATMENT AS APPLIED TO TEETH IN THE MOUTH.

To understand what the prophylaxis treatment in its application to the mouth and teeth is, we must understand the long train of unstudied and disregarded pathologic conditions which have their origin in the undisturbed infection on and about the teeth in the human mouth.

Calcific deposits are constantly occurring and recurring, and not less the more immediately hurtful acidulated bacterial accumulations; and more dangerous still the inspissated mucus which cements mouth fluids, mucoid excretions, decomposing food particles, and other septic and odoriferous matter upon the teeth; this debris is all maintained in the high normal heat of the mouth—98.6 deg. F.—and furnishes ideal conditions for the proliferation of germs, the induction of decay, and the fostering of disease in the human system. The pathologic states of the mouth and teeth in the order of their seriousness and frequency, may be defined as follows: pericemento-alveolar inflammations, dental caries, and impeded alveolar development.

Resulting from the first and most important—pericemento-alveolar inflammations—we find gum inflammations, alveolar absorption, pyorrhea, stomatitis, and pericemental abscess; the latter a serious condition, resulting in the inevitable loss of the tooth. Caries, with its attendant decalcification of dentin, followed by pulp exposure, alveolar abscess, and final destruction of the *crown* of the tooth, although it has engrossed the thought of dentistry in the past and is the embodiment of its efforts in

the present, is far less serious in its results. Impeded alveolar development, a common result of mouth infection of childhood, is a cause of many alveolar deformities and many crowded and irregular conditions of the teeth—conditions which detract from the charm of facial expression, greatly increase infection, incite decay and multiply loss of the teeth.

Whether conscious of it or not, every human being with natural teeth is a sufferer from mouth infection, some to a greater extent than others—the civilized more than the savage.

The oral prophylaxis treatment, as instituted and recommended by the author, has for its one object and aim the freeing of the oral cavity of conditions of tooth decay which has become practically universal, and the eradication of infection from the same, to conserve human health and prolong human life. In all stations and conditions the treatment has demonstrated its sufficiency and its reasonable practicability. The benefits accruing to the mouth and teeth, and thence to the general health, are startling in the scope of their marvellous efficiency.

SUBSTANTIATION OF THEORIES RESPECTING TOOTH DECAY AND TOOTH PRESERVATION.

In previous writings I have persistently maintained that tooth decay always begins on some surface of the tooth which is exposed to the fluids of the mouth. It never originates in the substance of the tooth unexposed, either crown or root. If the decay is in the crown, it begins in the enamel; if devoid of enamel, it may attack the surface of the dentin at any point. Once in the dentin, the decay proceeds along the lines of the tubules in the direction of the pulp. The process of tooth-solution, which we call decay, is largely chemical, and is hindered or opposed by two conditions only: (a) the composition or consolidation of enamel and dentin, (b) the expression of vital energy interposed by a living pulp—a force often scarcely appreciable. No matter what the physical state of the crown of the tooth, whether hard or soft, good or bad, alive or dead, the agents and agencies which cause decay are in the environment or surroundings of the teeth. Evidence from practical experience in support of this is abundant and unvarying. A simple and incontestable proof is found in the state of an extracted tooth. Let a pulpless, decaying tooth be removed from a mouth where the environments are such that resolution is rapidly taking place, and let it be placed in water, alcohol or glycerin, or simply exposed in the air, and all decay in that tooth is immediately arrested; any further disintegration will come only with the lapse of years.

To institute simulated or artificial decay in a tooth while it is out of its natural environment, as has been frequently done, is wholly unavailing as a matter of scientific investigation. All

such processes are but artificial decomposition, and are so unlike tooth-decay in the mouth that true scientific research is not advanced by them. Teeth are the subject of true decay only when they are in the normal menstruum and temperature of the mouth.

The all-important matter for dentistry to consider and determine is, whether oral prophylaxis, understood and properly instituted, will arrest, prevent, or retard decay of the teeth *in the mouth*. To this end there is needed not *theorizing* but clear clinical observation and close study of mouth conditions.

WHAT TEN YEARS' WORK HAS DEMONSTRATED.

Ten years' experimentation has abundantly demonstrated that while the treatment will not arrest decay which is already in progress, whether as new cavities or under old or imperfect fillings, it will prevent its appearance on surfaces where the prophylaxis treatment has been regularly instituted. It will also greatly retard the progress of decay in open cavities and under old fillings.

An editorial in a recent number of *American Medicine* reads in part as follows: "There are ten millions of them! Everybody knows about them, the disease they spread, their horrors, their worse than loathsomeness! Everyone endures, submits in silence, feels himself powerless to remedy. Boards of Health cannot, or think they cannot, attack the evil; or they are too busy with things they think are more important. And so the filthy country and village water-closet persists from generation to generation. The intellectual philanthropist is yet to come who shall undertake one of the greatest reforms of the world!"

The greatest sanitary reform of the world is not the abolition of the village closet, but it lies in the herculean task of revolutionizing the unsanitary and infectious condition of the human mouth. Contagion and disease from the latter are a thousand fold more subtle and dangerous than from the former, for infection in the human mouth is found not in country and village alone, but in town and city—in all places where humanity dwells.

If this be true—and who shall dispute it?—oral prophylaxis treatment presents itself as a subject of momentous import both for the profession and the public. It is not a matter to be tossed hastily aside because it does not coincide with our prejudices or preconceived opinions; neither is it a matter to be adjudged wholly from the standpoint of self interest. Theoretical difficulties have been presented and unjustifiable self-interests have been urged against it, until we have sometimes asked with unutterable groanings, "Is dentistry, with such views, worthy to be called a profession?"

One writer declares, "The great limitation to the universal success of Dr. Smith's method lies in the non-receptiveness of

the mass of people to methods involving as much attention to details as must be required of those patients following his system."

This unjustifiable deduction in the *Cosmos*, from the pen of a professor in dentistry, exhibits not only the prejudice of inexperience, but shows a lamentable, if not inexcusable, ignorance of the whole subject of oral prophylaxis; it is an example of the futility of theory in dentistry *vs.* practical experience.

In reply to the seeming objection respecting "the non-receptiveness of the mass of the people," it may be said, the statement is assertion only; it has no basis in fact.

To "the mass of the people," dentistry of the present extends no benefits, it presents no hope, it affords no relief, save in the one direction—that of ridding the mouth of aching teeth through extraction. "The mass of the people" are not instructed respecting the teeth; they are wholly unacquainted with the necessities, requirements, or value of these organs. How, then, should they be expected to follow out any theory or give attention to the details of any "system," for their betterment or preservation.

This, however, is true—whenever requisite presentation respecting the infectious states of the teeth in ordinary conditions of the human mouth is made to people of intelligence, with whom dentistry has largely to do, and the relations of these conditions to decay of the teeth has been correlated and explained, the liveliest interest has always been awakened, and patients have been stirred to willing co-operation in all reasonable efforts for the betterment and immunizing of the teeth by the system of prophylaxis treatment I have advocated for the six years just past.

When instructed, patients have been quick to see and appreciate the imminent danger of systemic infection due to septic states of untreated teeth. A set of septic teeth, ordinarily presenting a surface of twenty to thirty square inches in the oral cavity, a cavity which has been aptly designated the vestibule of life, is a perpetual menace to human health.

No adequate consideration has even been given to the sources of infection inherent in the human mouth, consequent upon the presence of natural teeth. The adverse *local* consequences—decay, alveolar necrosis, pyorrhea, gum recession and final loss of the teeth—are as nothing in comparison with the evils to be revealed in the systemic disturbances and diseases which result from the continuous state of infection found in association with the teeth in the human mouth. These conditions, studied by dentistry and intelligently set forth to "the mass of people," would find "a receptiveness" which would not only astonish the opponents of this "system" of preventive treatment, but would render incalculable benefits to general health, longevity, and the happiness of all civilized humanity.

WHAT THE PROPHYLAXIS TREATMENT IS.

Let us here consider the nature and character of the prophylaxis treatment, and what it does for the mouth and teeth.

In general the treatment consists of enforced, radical and frequent change of environment for all teeth and all mouth conditions, and the maintenance of perfect sanitation for the oral cavity. More in detail it is the careful and complete removal of all concretions, calcic deposits, semisolids, bacterial plaques and inspissated secretions and excretions which gather on the surfaces of the teeth, between them, or at the gum margins; this instrumentation to be followed *in every case* by the thorough polishing of all tooth surfaces by *hand methods—power polishers should never be used*—not alone the more exposed labial and buccal surfaces of the teeth, but the lingual, palatal, and proximal surfaces as well, using for this purpose orange-wood points in suitable holders (*porte polishers*) charged with finely-ground pumice stone as a polishing material. Treated in this manner the teeth are placed in the most favorable condition to prevent and repel septic accumulations and deposits, and what is of equal importance, it aids the patient in all efforts to maintain sanitation and cleanliness.

“Brushing the tongue” for the removal of infectious coatings has been advocated more recently. Tongue *brushing* is impractical and devoid of utility. A coated tongue, especially if accompanied with tonsillar inflammation, may very properly and advantageously be disinfected (mopped off) by the use of germicidal applications on bibulous paper. I have produced marked beneficial results, when finding the tongue infectiously coated, through mopping it off once or twice a day with phenol sodique. *Zhongiva* is also an excellent remedy in this connection, and its use far more pleasant to the patient than phenol sodique, and perhaps equally efficient.

Studying more closely some of the specific benefits which result from the oral prophylaxis treatment, we notice first those that accrue to the teeth themselves. Three to six months of this treatment consistently carried forward will effectually change the whole appearance, and to some extent the whole character of a set of teeth. This change is seen in all cases, young and old, but it is specially marked in children and youth and in young adults. The dull, opaque, and lifeless aspect of the teeth exhibited in ordinary conditions of nearly all mouths, quickly gives way, under the prophylaxis treatment, to a clear, pure tooth color; the teeth in a limited time become naturally translucent, and present the appearance and true characteristics of living, healthy organs. Teeth that appear as a disfigurement in the mouth, even to disgust and loathing, when subjected for a time to the prophylaxis treatment, become strikingly ornate and attractive. The osseous structures, after a few months, exhibit

unmistakably a marked change for the better, and in most cases they become wholly immune to decay. The vital forces within the tooth—the pulp—and those surrounding it—the pericementum and its connections—are stirred and stimulated to new life and activity. Circulation in dentin and enamel is revived and quickened; old, stagnant colors and deposits are manifestly taken up and removed, and new, fresh, material deposited in place of them.

It is most interesting and instructive to witness the awakening and revivifying of the life forces of the teeth under treatment, as exhibited in the discharge of this undue and disagreeable color, in the brightening general aspect, and in the cessation of hyper-sensitiveness and irritability.

An irritating, life-destroying infection continuously adherent to the surfaces of untreated teeth, becomes a condition of violent exhibition in some cases, and when trained to recognize it, it is distinctly manifest in all. This infection retards circulation, hinders nutrition, and greatly interferes with the general health of the teeth. Manipulative treatment and the medication attending its frequent removal, stimulates and fosters the remarkable changes and improvenments noticed in the character and substance of all teeth which are the subject of this treatment.

The prophylaxis treatment, as yet but very imperfectly understood even by its friends, has been charged as merely a form of "tooth cleaning." Far more than this, it is a manipulative process that positively relieves the teeth from a virulent infection, and introduces a stimulation most beneficial to their internal and external life. If a tooth cleaning process, it is one of profound significance.

If time would permit, instances might be specifically cited and multiplied in which *no* new decay has appeared in mouths, even with complete sets of teeth, for four, five, and six years; and many others in which but a modicum of decay has been found in the same length of time, and that chiefly around old fillings.

WHAT IT DOES FOR DECIDUOUS TEETH.

The deciduous teeth in all cases are quickly and markedly influenced by the treatment. Of the limited number of children under seven years of age who are under the prophylaxis treatment, not one presents a new decay or a new defect in a tooth.

AN INTERESTING CASE.

One remarkably interesting and instructive case is that of a boy, a strongly-marked nervous temperament, brought to me when but three and a half years of age, in delicate health. At this time there were five large cavities—three approximal—in his teeth, and two places exhibiting such predisposition to decay that I prognosed cavities in them within three months. Through

exercise of patience and perseverance the cavities were excavated and filled with amalgam. (Perfect operations were impossible.) Immediately following the filling, for an entire year, his teeth were carefully treated every two weeks, barring one month during the summer vacation. Since that time—nearly five years—I have seen him on an average once a month; meanwhile his teeth have received rather more than the ordinary care of childhood, at home. The boy is now in his ninth year, with this record: excessive nervousness arrested; general health fully established; teeth, as to decay, in perfect condition (predicted cavities did not appear); one new pin-head cavity in distal sulcus of left superior temporary molar (probably started before first five fillings were made); one re-decay around largest and most difficult of the five original fillings. Twelve of the temporary teeth have loosened and come out, every one in nature's own way, through complete root absorption. First permanent molars, inferior and superior permanent incisors erupted, cuspids presenting. The first molars—erupted at five and a half—have unusually large crowns with strongly-marked, pointed cusps and correspondingly deep sulci and linear markings. Formation, shape, and time of eruption of these teeth, presaged early and rapid decay; nevertheless, they are at this writing all in perfect state of preservation, and evidently improving in character. Neither infection nor chemical agents are permitted to fasten upon any of their surfaces, and the life forces are evidently building into them a more compact and decay-resisting structural consolidation.

The benefits resulting from the prophylaxis treatment as exhibited in this case are equally marked in every case where deciduous teeth have been subjected to the treatment.

Another result, convincing as to the benefits of this treatment beyond all others that can be cited, may be witnessed in connection with many cases in which decay, running riot in both temporary and permanent teeth at ten and eleven years of age, has been practically stopped following the full institution of the prophylaxis treatment. The second, or twelfth year molars, erupting into a healthy environment, have been universally found in perfect condition, and have continued thus far devoid of decay, even in the sulci. Not in one instance merely, but in practically every instance, these conditions exist.

Other and most convincing proofs may be seen in connection with the eruption of wisdom teeth. Perhaps the most noteworthy instance in my practice in this connection is that of a young man, at the time about nineteen, for whom I had operated from boyhood, long antedating the introduction of the prophylaxis treatment. The teeth in this mouth had decayed early and in all directions. Crown, approximal, and labial fillings are to be seen in all parts of the mouth; even the lower incisors and cuspids had not escaped. The four wisdom teeth appeared about two years after beginning an irregular and unsatisfactory

course of prophylaxis treatment, but even with this, the contrast between these teeth and the twenty-eight which preceded them affords a most instructive lesson regarding the benefits of treatment. Despised, misrepresented, and condemned to decay and loss, as wisdom teeth frequently are, these teeth (and I could mention a number of similar cases) erupting into a mouth which had been but quite irregularly under treatment, were perfect. Decay had appeared in every class of teeth which developed before the prophylaxis treatment commenced, but in these wisdom teeth there was neither decay nor the appearance of it, and this condition pertained until the case passed from under my care.

As a further observation of the benefits of this treatment, I desire to put on record a development of marked significance, namely, a decided modification noticed in the sensitiveness of the dentin of teeth, especially in children, following the institution of a regular and consistent treatment. Diminishing of acute sensitiveness seems to follow as a general result, and not to be some special temporary condition. The extreme sensitiveness in the dentin of young teeth has been so modified and lessened, apparently by this treatment, as that ordinary operations for filling have been performed without the intense suffering usually attending such cases. Children and young people who are under this treatment, submit to ordinary operations without compulsion or a special complaint. Operations that under the old regime would cause much suffering, if not deemed unbearable, have been greatly mitigated in intensity.

It is an inadequate presentation to say, that the prophylaxis treatment is a marked modifier of sensitive dentin, especially in the young, and that it is a mitigator of suffering under all dental operations. This may seem an extreme statement, but when fully tested by experience it will be received as conservatively true.

Hyper-sensitiveness of dentin is a result of pericemental irritation far more than of pulp irritation. The external and most important life of the tooth—the pericemental life—is markedly influenced by the irritative infection found always at the necks of untreated teeth. Removal of this infection is the removal of the cause of much of the undue sensitiveness of dental tissue.

THE MARKED BENEFICIAL INFLUENCE OF THE TREATMENT IN CONNECTION WITH GUM AND PERICEMENTAL TISSUE.

The benefits which accrue directly to the teeth are not more manifest nor more pronounced than such as immediately appear in the pericementum and gums. The presence of irritative infectious matter on the surfaces of untreated teeth, sufficient to affect the pericementum and surrounding gum tissue, is found in

connection with all untreated teeth. It appears coeval with their eruption, and continues, in ordinary conditions, as long as the teeth are retained. It is bounded only by the extent of the dentate surface exposed in the mouth; as a result, the pericemental tissue and gums in ordinary mouth conditions are perpetually in a state of undue sensitiveness, and not less, a condition of undue, often extreme, vascularity. Under the prophylaxis treatment, through which all irritants are removed, these tissues quickly lose their extreme and unnatural sensitiveness, and recover the normal condition of low-grade sensibility. (Gum tissue in a state of health is always without acute sensation.) The circulatory vessels also lose the unnatural distension and tumefaction consequent upon irritation, recover tonicity, and contract to normal dimensions. Three to six months of treatment will remove all marked sensibility and tendency to bleed, and operations for filling at cervical margins, especially on the upper jaw, can be safely and easily performed without the use of the rubber-dam. It is the irritative, toxic matter at the necks of the teeth that occasions the sensitive states and highly vascular conditions of the gums and pericemental tissue. A mouth with teeth freed from this infection and kept in an aseptic condition, will have gums tense and hard, without vascularity and without undue sensibility.

We have, then, to commend the prophylaxis treatment: first, for its prevention of decay; second, for its stimulation to external and internal life and health of the teeth; third, for its influence in decreasing sensation in dentin and gum tissue; fourth, for its correction of the undue vascularity in gum tissue; and fifth, for its positive removal of all infection from the mouth and ultimately from the breath.

SELF-TREATMENT BY PATIENTS.

It may be well to enter somewhat into detail respecting the care and co-operation expected, *even required*, of patients under the prophylaxis treatment. In the beginning, for four to six months they are required to present regularly, on appointment, once a month for treatment, which is carefully applied, using only hand methods as heretofore described. Every patient should be armed with proper appliances, especially brush and dentifrice, for cleansing the teeth and mouth, and fully instructed in the use of the same.

The tooth-brush, which is the main reliance of the patient, is at best an inefficient instrument for cleansing teeth. It is, however, the best our civilization has produced, hence until something better is devised, necessity compels the use of it. Of the hundreds of shapes, varieties, and kinds on the market, very few are suitable for use. Unfortunately the choice and *selection* of tooth-brushes for the general public is now largely relegated to

sales-ladies in the department stores, and the preparation of dentifrices and so-called mouth-washes is in the hands of druggists, a condition of things as incongruous as is the compounding of medicines by the post-office clerk in a general country store. Would not dentistry itself be greatly embarrassed, if not awkwardly handicapped, if suddenly confronted with a demand, from kingly authority, for a really efficient tooth-brush or dentifrice? Probably not one in a thousand could present a clear, consistent idea of what the character or shape of a brush should be to best do the work of cleansing the teeth.

It may be said, without hesitation or fear of contradiction, there is no part of the human body which is so imperfectly and ignorantly cared for as this most important cavity containing the teeth. Attending to the teeth by the patient is a matter which has neither been studied nor taught either by the professionalist or the laity. The child is *taught* to wash the hands, to bathe the body—but the human mouth, the very vestibule of life, is left wholly without intelligent care.

Witness the education of the average child in a matter of such vital importance: After breakfast (occasionally), "John (or Mary), have you brushed your teeth this morning?" "No, ma'am." "Well, go right away to the bath-room and brush your teeth." Has the child ever been taught rational methods? No. Examine the equipments placed in the hands of childhood for this important operation. Even when new, a cheap, illy-adapted brush and unusable dentifrice (good enough for the children) is all they can find. This want of intelligent instruction, and these careless methods in childhood, follow through life.

The results are everywhere seen in repulsive exhibits of decayed, infection-coated teeth, offensive breaths, a display of discolored fillings, and that dental monstrosity, so common—the gold crown.

Solomon said of the teeth of the daughter of Zion, the perfection of beauty, "Thy teeth are like a flock of sheep, even shorn, which go up from the washing whereof every one bearest twins, and there is not one barren among them." A most beautiful description of a perfect, thoroughly-cared-for set of teeth.

The general public, compelled to rely on the tooth-brush, is yet without proper equipment for cleansing the teeth. The whole operation soon becomes distasteful, irksome, and generally the merest farce. Patients present with mouths reeking with infection, teeth loaded with deposits that are antiquated, and affirm "that they are very careful about brushing their teeth."

All this should be changed. It can only be done by a process of education, and that through instruction given by dentistry. Every dentist should first inform himself, and then fully instruct individual patients in the details of the care of the human mouth. The people should be taught that cleaning the teeth is not merely the *possession* of a tooth-brush. The best shaped brush in the

world will not clean the teeth in a human mouth unless it is intelligently used.

A tooth-brush should possess the requisites of shape, substance and stability. In shape it should be plain and perfectly straight, the bristles neither coarse nor fine, set in rows of different lengths; in substance, all of the best materials. There should be no concavity to fit the arch when the brush is at rest; no fancy curves; no tufts of bristles at the end. It should be of size, in length and width, to form a mass of bristles to cover the teeth and give stability and substance when in use.

In using the brush it should be passed over labial, buccal, lingual, and palatal—or the whole outer and inner surfaces of the teeth, with a vigorous *horizontal* movement, the hand adapting the brush, as far as possible, to all tooth surfaces. With care and a straight brush all parts of the exposed crowns may thus be reached and cleansed as well as a brush can do this office work. Attempting to cleanse the teeth with the vertical movement, using a concave brush, as some teach, on the convex surface of the dental arches, while of little avail, will do no harm, either to the teeth or gums. Such use of the brush in a measure relieves the interstices of food remains, and thus assists in a work that can be much better done with a tooth-pick. The most widely advertised, and perhaps the most popular tooth-brush of the present, is the so-called "prophylactic." This brush, and all similar in shape, is a conspicuous example of lack of adaptation of means to an end. It demands the vertical movement of the brush on the external surface of the arches and on the inner surfaces it presents a double bow, most effectually preventing contact of any considerable surface of the brush with the most uncleanly portions of the teeth. A plain brush, with horizontal movement, is much better and much more efficacious.

It has been urged that the vertical movement of the brush acts as a kind of massage, tending to brush the gums onto the teeth, while the horizontal movement brushes them away from the teeth. This is the merest *theory*, a statement wholly without justification in actual conditions. The vertical movement of the brush is not more a massage of the gums than is the horizontal movement. There is no process of brushing which approximates a massage treatment of the gums, and it would avail nothing if there could be. My patients are always instructed, in connection with the prophylaxis treatment, to use the brush with a vigorous horizontal movement, even when the gums and alveolar process have necrosed until the festoons have become everted, and to continue the brushing until the teeth are not only brushed but *cleansed*. I have never yet seen a case in which reformation of tissue has not followed the treatment, and in all cases not connected with pyorrhea, restoration of the festoons has been complete and perfect.

The tooth-brush implies a dentifrice, and a dentifrice is

demanded for cleaning the teeth. To attempt a review of the compounds under the head of so-called dentifrices, would consume far more time than is allotted this paper. We can only say of the tooth powders, tablets, washes, and pastes sold as dentifrices, while they are manufactured and sold largely through the greatest empiricism, and while some are far more efficient and pleasant than others, few of them can be classed as positively harmful when used within proper limits.

So-called tooth powders are compounded from some base, generally prepared chalk (*calc. carb. precipitas*), orris root, (*iridis Florentinae*), acidum salicylicum, or some other material. To the base selected may be added, according to the fancy of the druggist or compounder, white sugar, soap, soap-bark, cinchona, cinnamon, cuttle-fish bone (*ossis sepiiæ pulveris*), pumice stone (*lapidis pumicei pulveris*), flavoring and coloring, or whatever may be supposed to make a pleasant and salable preparation, to be advertised and sold "for beautifying the teeth and imparting sweet odors to the breath." We are not altogether decrying these powder preparations, for something of the powder or soap nature is demanded always, with the brush. Patients should be taught to avoid all pastes or liquid dentifrices, for they are not only inefficient, but frequently harmful. A good soap, as a pure Castile, may be used *ad libitum*, and always with benefit to the mouth.

The impression very generally prevails that the *time* for brushing the teeth is after meals. This is a fallacy for dentistry to uproot. To receive the greatest benefit from the use of the tooth-brush, the mouth should be thoroughly cleansed always just *before* meals. Infection gathers upon the teeth in the interim between meals, when the salivary glands are at rest and the teeth not in use; it is during periods of rest that the mucous secretion and mucoid excretions from mucous surfaces are lodged upon the teeth in greatest quantity. Cleansing the mouth and teeth from this viscid debris *before* meals, prevents the washing of these toxic tooth accretions into the gastro-intestinal tract with the food. Who is not taught to wash the *hands* before meals? Of how much greater importance is the cleansing of the human mouth! If the accustomed method with the brush is not practicable, it may be always practicable to thoroughly rinse the mouth with water and to wipe the main exposed surfaces of the teeth with the corner of a towel or napkin. This method of cleaning the teeth is not enough in vogue. After meals, the teeth may be freed of food remains with some form of tooth-pick, preferably the "quill," which is all that is required. Careful cleansing, devoting not seconds but minutes to the operation, should always precede retiring for the night and immediately succeed rising in the morning.

Cleansing the mouth thus frequently, and at stated periods,

ORIGINAL COMMUNICATIONS

will greatly tend to preserve the teeth from decay, and surely lessen the inroads of systemic infection.

ANOTHER VIEW OF MOUTH INFECTION.

The photographer who would make sure of a satisfactory picture, having made one negative, will frequently change the position of his subject for another view; he may move the head into another light, readjust the camera and screens, or perhaps rearrange the shading. That we may fasten upon the mind and carry away with us a more vivid and lasting picture of these adverse, repugnant, and hurtful mouth conditions, let us here endeavor to secure a picture from another point of view.

A Mr. McC. quite recently applied for relief from one of the most unpromising conditions of pyorrhea it has been my good fortune to encounter. I say "good fortune," for I regard it as good fortune that through study and practice of the oral prophylaxis treatment the dental profession is now able to throw off the shackles which have so long held it in bondage to the commonly accepted theory that alveolar pyorrhea is a *disease* of constitutional origin, and incurable. It is good fortune, as well as a great pleasure to bring relief to a long list of afflicted ones, and to proclaim the fact that alveolar pyorrhea is not a *disease* in the true meaning of that term; that it does not result from the gouty or uric acid diathesis; it is a pleasure to proclaim that it is not a result of some "constitutional vice," nor of any special constitutional condition. The glamor and charm of mystery no longer hangs over this affection; the light of rational, indisputable, scientific truth shines through the mists and clouds of speculation and theory which have so long enveloped it.

WHAT ALVEOLAR PYORRHEA IS.

Alveolar pyorrhea is not properly classified as a "disease." Its very definition—flow of pus—implies that it should be taken from the category of diseases and placed among the inflammations. Properly defined, alveolar pyorrhea is an inflammation within the confines of the peridental membrane and contiguous tissues; an inflammation due wholly to the irritation resulting from stagnant septic matter adherent to the surfaces, necks, and roots of natural teeth. It need no longer be said that these are "constitutional conditions, complex in their manifestations;" neither that their "medical and hygienic management are almost exclusively in the hands of the physician." How utterly absurd is the proposition that the "duty of the dental practitioner is confined largely to the question of diagnosis." Treatment of pyorrhea relegated to the medical profession! *Neither* diagnosis nor treatment belongs to medicine; it is a mouth disorder strictly within the realm of the dental practitioner. It is to the discredit of dentistry and not of medicine that such contradictory

and inconsistent teachings prevail respecting it. It is a mouth affection in association with the teeth, of which medicine, as a profession, has never assumed to know. Occurring in mouths with large, strong, and apparently healthy teeth, how should medicine suspect that it is largely, if not entirely, the prime cause of renal disturbances, uremia, diabetes and albuminuria, and many other constitutional disturbances of which we know so little?

I here exhibit casts of the mouth referred to as it presented from the hands of one of the fashionable dentists of Philadelphia. It is a typical case of pyorrhea. A married man in middle life—thirty-eight years—with hard, strong teeth, crowns large and irregular, roots not long and probably conical; marked cervical constriction, and pericemental tissue scanty. This gentleman is a smoker, but not given to excesses or vices; had brushed his teeth latterly with so-called "prophylactic" brush after approved methods, vertical movement.

As through this case, we look upon the horrible conditions in human mouths everywhere, in high and low born, king and peasant, and realize that they are wholly due to states and conditions of natural teeth, and so largely preventable, shall not we rise as witnesses for, and to advocate better things for neglected, untaught, suffering humanity?

But to return to this typical case of pyorrhea. The broad-bladed scaler of the Smith set was passed back to the lingual surface of the second lower molar, where it was loaded with years of accumulations of calcic toxins, recent exudations of globules of pus, and gatherings of every variety of mouth debris. This conglomerate mass of revolting matter was held up to view, and the patient asked if he would like to handle it, to smell it, to taste it, to have it returned to the mouth. To all of these suggestions there was prompt declination. Then it was clearly explained that matter of similar nature is found on all untreated teeth, and that teeth are not on the outside of the body, *but inside the mouth*; that such conditions exist, not one hour in the day, but twenty-four hours of every day; not one day in the year, but three hundred and sixty-five days of every year; and further, this infectious matter on the teeth *in the mouth*, is in a temperature constantly maintained at 98.6 deg. F., than which nothing could possibly be more favorable for germ culture, for imparting odors to the breath, nor for filling the lungs with infectious emanations.

From the mouth and teeth, septic matter is being conveyed directly into the gastro-intestinal tract, thence to the circulation, whence it may be deposited in any organ or tissue, and become the nucleus of serious, chronic, systemic maladies. To emphasize the continual presence of this deleterious matter, the patient was told he could at any hour of the day draw floss silk between the teeth, or pass the finger over their surfaces, and discover

most repellent odors; or he could recall the unpleasant taste in the mouth on rising in the morning, the fetid breath, especially at night, due not to stomach conditions, but to the stagnant, odoriferous matter on the teeth. Becoming dry, through inactivity of the salivary glands, the teeth send out into the breath of the sleeper poisonous emanations to do continuously a work of infection, unnoticed and unsuspected.

I would that it might be recognized by all, that sequences of the universal infection on the teeth in the oral cavity, are, in our present civilization, affecting the health of humanity to a greater extent than any other one physical condition. I could wish nothing grander or better for our profession than that it should see and embrace the magnificent opportunity unfolded in oral prophylaxis to move forward and occupy this new field of untold benefits.

Dentistry, in these revelations respecting states of infection ordinarily existing in the human mouth, has opened a door for general etiological research of far-reaching importance. The secrets of tooth-decay in and of themselves are of minor consequence in comparison with the systemic infections due directly to states and conditions of the teeth in the mouth. We venture to predict that recognition will ere long be made of the fact that tuberculosis—that decimator of homes—and possibly other grave chronic disorders, can find no soil for development in a system kept from the contaminations of mouth-infection through a vigorous prophylaxis treatment from childhood.

We have abundantly proven that diabetes and many gastrointestinal troubles are directly traceable to the mouth-infection of alveolar pyorrhea; also that many pharyngeal and tonsillar inflammations and many skin troubles have their origin in infection in the mouth, due to septic states of neglected teeth.

We know also that mental depression and hypochondria and many of the perplexing nervous conditions of women result from the same cause. Dentistry alone has the power to relieve humanity from the plague of mouth infection. When shall it command its own rightful place among the specialties of medicine?

1629 Walnut Street, Philadelphia.

THE FATHER OF PORCELAIN DENTAL ART.

BY DR. H. ZEIGLER, TORONTO.

In approaching a subject so full of interest to the dental profession, gratitude for faithful devotion to a good cause forms the strongest motive. Dr. Chas. S. Land, of Detroit, Mich., was psychologically prepared for a work which only true genius could accomplish. Early impressions, governed by high ideals and a burning zeal for the esthetic, was tersely expressed when a child. At the age of twelve years he unconsciously anticipated his future career by a striking incident which occurred in Dr. Chittenden's office, in Hamilton. It was in answer to a question asked by his mother as to his opinion of a large gold filling, which was given with all the directness characteristic of the coming man, "I don't like it." This simple negation of the absolute claim of gold as a substitute for lost dental tissue was the text of his life's plan, to be worked out in after years by painstaking and unremitting toil, and sustained by the energy of a true inspiration.

Dr. Land descended from true U. E. L. stock. His grandfather was one of the pioneer settlers of Hamilton, from whence he (Dr. Land) emigrated to the United States. The sterling worth of his ancestors, whose true loyalty was an element expressing itself in all their undertakings, was a necessary preparation and grounding for the essentials of a true scientist. Fortunate it was for the dental profession and suffering humanity that this should find its way into a field of research where opportunities for beneficent work were waiting for the brains of a genius.

The career of genius is not a path of flowers, nor is it governed by the non-resistant creed, but rather portrayed as an individual with the weapons of unswerving purpose, infinite patience, and unbounded confidence, attacking the crude materials and transforming them to useful service. So faithfully and well hath this man wrought that the hidden things, hitherto in darkness, have been brought to light.

The late Dr. Atkinson, of New York, very aptly stated the origin of this new departure, in answer to an eager enquiry made by a brother dentist, by saying, "An angel whispered it to Dr. Land."

Harmony and symmetry is a goal toward which humanity is striving in all its activities. Instinctively the effort is made, because the inner thought yearns for the outward expression of the perfect embodiment of its ideals. There is no sordid motive behind such a being, but pity and sympathy commingle in patient

toil. The world is slow to recognize the unselfish labors of all reformers and scientists, and, as a great writer has stated, "are only awakened by the shock of sacrifice." For twenty years the slow but persistent work has been carried on. Certainly, comparatively crude in its early stages, but always containing the true germ of genius and principle developed and rejuvenated from scientific experiment and subjected to all tests that a true scientist would desire to employ, thus proving very often, in opposition to outside attacks of jealous insinuations, the value of the true and defects of the spurious. This has brought about sometimes unjust and unsubstantiated criticisms. True to the cause, and regardless of mere opinion, Dr. Land has not only outgrown, but outrivaled any other claims as to the origination of porcelain art.

The dental profession has been trying to keep pace with this reform, but has followed afar off, and tardy in its recognition of so marked ability. The honor which a true prophet deserves is certainly a reward which comes regardless of place, position, or time.

The tributes paid to Dr. Land's career and worth, as well as his work, during the recent world's convention at St. Louis, were repeated and sincere, especially so as expressed in the heading of this article by an eminent German dentist, as "Father Land."

The result of this art is a perfect restoration of the natural organ with a substance compatible in structure and harmonious in color. The field open, the outlook to a dentist's career is most inviting, demanding care and patience, and the most conscientious work, but reward will be an ever-grateful humanity.

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No. 1.

INSTITUTE OF DENTAL PEDAGOGICS.

The twelfth annual meeting of the Institute of Dental Pedagogics was held in the Galt House, Louisville, Ky., December 28th, 29th, 30th, 1904. This organization is different from any other dental body. Its function is to discuss how to teach dentistry. Beyond this it does not pretend to go. It must be plain to anyone that it is difficult for a body of dentists, who are all prominent in dental society work and practice and are only teachers by accident, to stick to the subject. In fact, the recent programme was largely made up of subjects found on the ordinary dental society programme, how to teach them not being even mentioned. Another stumbling block seems to be the discussion of what should be taught and whom should be taught. The Institute is supposed to be made up of the teaching staffs of all the colleges, but as it works out, only deans and those who are anxious to learn how to teach, attend. Not more than 10 per cent. of the teachers are present. The discussion of what should be taught and whom should be taught is largely a waste of time

by the Institute, because the Faculties' Association settles these two questions. They make out the curriculum and the preliminary requirements for students. Hence, all the Institute can hope to do is suggest. The majority, in fact, fully 95 per cent. of the dental teachers are dentists in full practice, who go to the college for an hour a day or a week and teach what they are told, and have no further interest in it. They care little what is taught in other departments, or who is taught. This condition will always maintain while our teachers are paid so much less for their services than they are in practice.

The meeting at Louisville, though it did diverge from the subject on one or two occasions, was an excellent one. The subjects were well presented and fully discussed. The hospitality of the South was well maintained. The "smoker" was very enjoyable, and the banquet will stand as a model in arrangement and speech-making. The Royal College of Dental Surgeons was represented by four of its faculty, and it has the honor of having one of its staff of teachers as secretary-treasurer of the Institute. This organization, as well as many others in the United States, has always treated their Canadian *confreres* with marked distinction and we appreciate it.

FIRST TERRITORIAL DENTAL CLINIC.

The first territorial dental clinic was held in Calgary on December 27th, 1904. There were quite a number present, several of them going six and seven hundred miles to attend the same. It was by far the most important dental meeting ever held in the Territories, for in addition to the clinic, the all-important question of Dominion registration and the Territorial relationship thereto was to be up for action. The leading feature of the clinic was the porcelain demonstration by Dr. Anger, of Lacombe, who acquitted himself with entire satisfaction to those present. After the clinic the regular business of the Association was taken up, when action was decided upon in regard to several professing dentists who are not complying with the law. The representative from the Territories to the Dominion Dental Council was then called upon to explain the propositions of that body. This done, a full discussion ensued, the many questions asked indicating a lively and intelligent interest in the subject of Dominion registration. It was then moved, seconded, and unanimously carried that "The North-West Territories become an agreeing district under the proposals of the Dominion Dental Council, and that representatives to the D. D. C. be elected in accordance with the agreement arrived at and hereby accepted."

The Recording-Secretary was also instructed to make a note in the minutes to the effect that the Territorial Association is pleased to believe that it is the first to give sanction to the proposals of Dominion registration. The representatives were then elected, they being: Four-year representative, Dr. W. D. Cowan, Regina; two-year representative, Dr. R. F. Edmonds, Calgary.

A tangible recognition of the unselfish work done by the Secretary, Dr. Size, of Moose Jaw, was then made by voting him a sum of money for past services. A vote of thanks was unanimously given to the officers of the past for their efforts in building up the association, also to the Territorial representative to the D. D. C., and to those who had assisted at the clinic, and to Dr. Edmonds for his labor in connection therewith. Two hours of an informal discussion on dental cases in practice followed, which was of a very beneficial nature. Date of next meeting left in hands of the Executive.

W. D. C.

DR. S. MOYER QUILTS DENTISTRY.

Dr. S. Moyer, of Galt, after practising dentistry for fifteen years, and gaining the highest position in his profession, retires to take an interest in the Metal Shingle and Siding Company, of Preston. Dr. Moyer has occupied every position in the gift of the profession of Ontario. As President of the Ontario Dental Society and toast-master of many dental banquets he showed rare tact and executive ability. The proceedings of almost every dental society of this continent will show that he has contributed some of the best papers on their records. At the great Fourth International Dental Congress, held in St. Louis last August, Dr. Moyer was one of the two essayists chosen to contribute essays from Canada. As an examiner in operative dentistry for the Royal College of Dental Surgeons, Dr. Moyer showed a mastery of his subject and a comprehension of what a student should know to practise dentistry. The profession loses one of its most brilliant members, but we know that, though he is otherwise occupied, he will always have a sincere interest in dentistry and its members. It is quite possible that Dr. Moyer may have a greater opportunity to serve dentistry in his new position than he has had in the past. Who knows, perhaps he may have time to serve his country as one of its legislators, and in that capacity he could be of infinite service in the legislature to the profession of dentistry. We hope and feel confident that he will meet with the success which his abilities deserve.

**OFFICERS OF THE FRATERNAL DENTAL SOCIETY
OF ST. LOUIS.**

President, Burton Lee Thorpe; Vice-President, E. P. Dameron; Secretary, S. H. Voyles; Treasurer, W. E. Brown.

**OFFICERS OF THE INSTITUTE OF DENTAL
PEDAGOGICS.**

President, S. H. Guilford, Philadelphia; Vice-President, D. R. Stubblefield, Nashville; Secretary-Treasurer, W. E. Willmott, Toronto. Executive Board—J. H. Kennerly, St. Louis, one year; L. P. Bethel, Columbus, two years; Ellison Hyllier, New York, three years.

**THE ONTARIO DENTAL SOCIETY MEETS
MARCH 13, 14, 15.**

The feature of this meeting will be the presence of Dr. C. N. Johnson, who will read a paper on "The Phenomena of the Susceptibility and Immunity in Dental Caries as They Affect us in Operative Dentistry," and a clinic, "Filling a Bicuspid or Molar Cavity with Gold."

The aim of the Programme Committee is to present operative dentistry in its many aspects, giving especial attention to modern operations, and those commonly performed in everyday practice. There will be several operations of like character performed at the same time, which will increase the possibility of their being seen. Dr. Chas. E. Pearson, Master of Clinics, will be pleased to receive the names of those who are willing to give clinics, so that space and time may be set apart for them.

The Programme Committee appointed Drs. Trotter, McDonagh and Kennedy as a committee to arrange for a banquet on Tuesday evening, March 14th.

Editorial Notes

DR. FRED. MALLORY, Toronto, has been ill for a month or more. Inflammatory rheumatism the cause.

DENTAL students in the South do not have any holidays! It is said that the grind begins in October and never ceases until May. In fact, they work overtime, because they expect to attend college eight months in seven.

A SHOPLIFTER in Toronto gave as her reason for not being responsible for her acts on that particular day that she had taken gas for some dental operation. The responsibilities for administering gas seem to be getting greater as time goes on. The court did not seem to see the point.

IN Great Britain there is an incorporated society of extractors and adaptors of teeth which claims to have the same right to practise dentistry as the registered dentist, so long as they do not call themselves dentists. They have been in existence ten years and have not been interfered with by the authorities, which is an admission of their claim.

Correspondence

A LETTER FROM DR. JOHNSON.

My Dear Dr. Seccombe,—

Your very cordial letter just received. I am deeply touched by the expression of good-will coming from my friends in Ontario, and I can seldom find it in my heart to ignore any appeal made to me from that quarter.

Since coming home from my vacation this autumn, I have, for some reason, been simply deluged with invitations to attend society meetings this winter and coming summer from all parts of the country, from San Francisco to New York, and from Memphis to North Dakota. I really would not have any time in my office if I listened to half these appeals, and so—hard as it is—I am obliged to send my regrets to most of them. This year I am exceptionally busy, the never-ending troop of duties apparently coming at me from all angles. And yet, my dear Doctor, your invitation appeals to me in a peculiar way, and I

really must make the effort to go. If I can be of any benefit to the Canadian profession, I assuredly should be the last man to decline, in view of all their many kindnesses to me in the past, and in view, also, of the fact that, while I have some of the dearest friends in the world on this side of the line, yet that does not in the least detract from my sympathies and my love for the dear old land that gave me birth. I have always been deeply interested in the welfare of the profession over there, and if you think I can lend aid to your Society I shall break away from my duties and go.

I have been thinking that a profitable subject to introduce among your members would be something like this: "The Phenomena of Susceptibility and Immunity in Dental Caries as They Affect us in Operative Dentistry." I think I can stir up some interest along this line, but if your committee would rather have me write on something else, I shall gladly do so. I have already read one paper for the Ontario Society on "Cavity Preparation," and thought a change might be advisable.

One thing further. Two years ago, when in Montreal at the C. D. A., I had so many appeals to see me operate that I felt embarrassed at being obliged to decline. I went there with the distinct understanding that I should not operate, because I had operated so often in public that it had grown burdensome to me, and I had concluded that I must not do so much of it. But really, when I saw the disappointment I caused, I came away from the meeting feeling almost as if I had fallen short in my duty. In view of this, and to aid in the practical interest of the meeting, I should be glad of an opportunity to do one more operation for your Society—that is, if it is your purpose to have clinics. I would like to insert a proximo-occlusal gold filling in a bicuspid or molar. I trust, Doctor, I am not over bold in suggesting this. I merely wish to do my best for you while there.

Sincerely and most cordially yours,

C. N. JOHNSON.

Chicago, Nov. 29th, 1904.

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Original Communications

A STUDY OF THE BEST MEANS OF LOCAL ANESTHESIA FOR EXTRACTION OF TEETH.

BY DR. E. SAUVEZ,

Dentist to the Hospitals of Paris, Professor of the "Ecole Dentaire de Paris," President of the National Dental Federation.

Read before the Canadian Dental Association, September 6th, 1904.

Struck with the exclusive use of general anesthesia by our American confreres, we have thought to engage their interest by exposing the benefits they might derive from a method which we have mastered in twelve years of practice.

We are the better in a position to speak of this in so far that when, in 1893, we wrote our thesis on "The best method of anesthesia to employ in Dentistry," we extolled the use of bromide of ethyl for complete anesthesia, and two years of further experiments had not yet eradicated a certain fear concerning the use of cocaine. Since then, statistics covering nearly fifteen thousand cases of injections of cocaine with neither accident nor incident, have made of us a warm partisan of local anesthesia.

We should like therefore to plead especially in this Congress in favor of local anesthesia, in which we have absolute confidence, thoroughly persuaded as we are that we speak in the interests of the patient and of the dentist, and feeling assured that the operations will thereby be the better executed.

First, we propose to make a criticism of general anesthesia as employed in dentistry.

After having mentioned the inconveniences, preliminary, so to say, to the use of all general anesthetics (examination of the

heart and lungs, the function of the liver, the presence of one or more acids), we arrive at the main objection to the employment of general anesthesia, the possibility of death.

We divide our arguments into three groups:

1. *Physiological Arguments.*—General anesthetics act by inducing functional arrest in the nervous centres, according to an immutable, hierarchical sequence; in the first place in the tegument, then in the medullar, reflex centres, and finally in the bulb; if anesthesia is still further developed, the bulbous centres become paralyzed and death ensues.

2. *Statistical Arguments.*—According to the *Edinburg Medical Journal*, of November, 1903, the number of fatal cases produced by general anesthesia are divided as follows:

Chloride Ethyl.....	1 in 16,000.
Bromure.....	1 in 4,000.
Etl er.....	1 in 12,000.
Chloroform	1 in 2,000.
Protoxyde azote.....	Impossible of calculation.

However, thirteen cases of death due to protoxyde are known (cases of Maurice Perrin, of Magitot, of Watson and of Duchesne.)

And we are dealing only with fatal cases. We do not mention the frequent and serious accidents, the blue syncopes from which the patients are only saved by artificial respiration. According to the witty expression of Prof. Reclus, "for an accident to count, it must be fatal."

3. *Operating Arguments.* We expose in our memoir the difficulties of operation due to the inertia of the completely anesthetized patient, and to the decubitus dorsal, or reclining position, in which he is generally placed.

3a. *Medico-legal Arguments.*—In case of fatal accident, when the matter is brought to court, the judges, who would never question the use of an anesthetic for a serious operation, will often bitterly contest its employment when it is merely the question of the extraction of a tooth.

We lay stress finally in our memoir on the results of general anesthesia. Here, we simply note the cephalgias, the nausea, lumbago, the peculiar state of general illness, and often the insomnia which may last for several consecutive days. With complete anesthesia of short duration (somnoform, protoxyde, etc.), a hasty operation becomes necessary and mistakes and accidents may result.

We discuss next the advantages attributed to complete anesthesia, among others, that patient does not see himself operated upon, that several extractions can be made at one sitting, and that, according to some authors, cicatrization takes place the more rapidly. Of three arguments, we believe that the first two in no wise balance the inconveni-

ences and dangers of which we have spoken, and the last one is at least open to argument. Reclus, who employed cocaine for general surgery, has never observed that cicatrization by first instance was any slower by this method, than in the case of general anesthesia.

If we broach now the exposition of dangers and inconveniences of local anesthesia, we can affirm that the first are null (no fatal case observed under the use of twenty-three centigrammes of cocaine, and three centigrammes more than suffice for our dental operations) and, as regard the inconveniences, they may be summed up as follows:

1. Risk of illness: at most, slight vertigo in insignificant proportions and only in patients predisposed thereto; at any rate, never serious disorders.

2. In two cases of dental surgery: extraction of wisdom tooth with trismus, or in complicated operations, such as we define in our memoir, local anesthesia is contraindicated.

3. In two other cases, acute arthritis, or abscess, local anesthesia for the most part merely determines attenuation of the pain. Among the numerous advantages presented by local anesthesia we lay stress notably on time, tranquillity, and the several facilities offered by cocaine to the operator to accomplish surgical intervention with leisure and steadiness.

METHODS OF ANESTHESIA OTHER THAN COCAINE AND REFRIGERATION.

After citing all the substances abandoned as impracticable, for instance, tincture of cannabis indica, strong carbolic acid, orthoform, etc., we lay stress on the use of electricity as an agent of local anesthesia.

Electricity has been employed in two ways:

(a) A current of high frequency directed towards the level of a tooth during a variable period previous to extraction (Regner and Didsbury).

(b) The introduction of medicinal substances (cocaine) within the tissues, by the aid of electricity. This is the cataphoresis based on the theory of Faraday's ions (Pont).

After exposing the operating manual of these means of local anesthesia, we develop its critique and show that electricity, as an agent of anesthesia, is not to be depended upon, presenting many inconveniences and difficulties.

We are thus forced to bring forward cocaine, or its derivatives, which, in injections, seem to give practical results superior to all other methods of local anesthesia known at present.

COCAINE—PHYSIOLOGICAL PROPERTIES—LOCAL ANESTHESIA—
TOXICITY—DERIVATIVES—TROPACOCAIN—EUCAIN—
—PHENATE—CITRATE.

After the exposition of the history and the chemical properties of cocaine, we now approach the physiological properties of this alkaloid.

Practically, cocaine is a local anesthetic; from a physiological standpoint, it is a general as well as a local anesthetic. The complete anesthesia attributed to cocaine has been much discussed. Research on this subject by Mosso and Albertoni has caused cocaine to be recognized as possessing the characteristics of a general anesthetic, because of its universal and temporary action on the cells (definition of Claude Bernard); Charpentier de Manez assures us that this is a true characteristic of cocaine, so far as germination and fermentation are concerned. Injected into animals in physiological doses, cocaine determines in them an extreme muscular excitation, followed by an insensibility exclusively of the surface, the deeper sensibility being preserved.

It is this fact that caused Laffont and Arloing to consider cocaine as a sensitive curare which acted exclusively on the sensitive nerve extremities, just as this last alkaloid affects the motor extremities. This theory of a sensitive curare is combated by Mosso; an injection of cocaine in the body of a nerve brings about anesthesia of the adjacent territory dependent on that nerve, which fact induced Feinberg, Oberst, Pernice, Mans and Reclus to create regional anesthesia; which, furthermore, permitted the conception and execution of rachicocainization (Bier), in which the action of the cocaine is directed to the rachidian roots.

One of the most remarkable of the properties of cocaine is its vaso-constrictive action. We emphasize this fact and expose its divers consequences. Let us here only cite the elevation of the blood pressure. We dwell as well on its action on the centres of thermic regulation—cocaine heightens the temperature, (Riche) and on the ocular apparatus (Mydriase).

We now approach the dangers which the use of cocaine might offer. In the first place, there is syncope. We show its rarity and explain how easy it is to avoid it by employing the right dose on the reclining patient. The other phenomena observed, sometimes subsequent even to correct injections of cocaine, are slight and insignificant: slight tingling (pins and needles) of the extremities and greater loquacity. There is really nothing in local anesthesia by cocaine approaching the sudden scares which accompany the use of chloroform. Statistics bear us out in this statement. In 7,000 cases of anesthesia by cocaine practised by Reclus, he has not noted the slightest trouble in the physiological equilibrium. With a minimum

of 15,000 injections, we cannot register one accident, not even an incident, due to the use of cocaine. We are therefore, in a position to affirm that this is the most inoffensive of all the anesthetics, and that it exposes one to no surprise whatever.

With the aim of avoiding the so-called inconveniences attributed to cocaine, its derivatives or congeneric substances have been experimented with, which subject is treated at length in our thesis. We will here limit ourselves with citing the conclusions we arrived at concerning tropococaine and euacaine.

Tropococaine presents an equal degree of toxicity, while its anesthetic action appears less profound than that of cocaine.

Euacaine is a vasodilator, its injection is painful, and it presents a feebler power of anesthesia and of a shorter period of duration than cocaine.

Phenate of cocaine, insoluble in water, and employed, therefore, dissolved in oil or liquid vaseline, produces nodules, which are long in disappearing.

Therefore the use of chlorhydrate of cocaine appears to us to carry with it all the advantages claimed for the preparations compared to it, as much from the point of view of the anesthesia produced, as by the percentage of possible accidents.

MEDIUM OTHER THAN WATER.

The researches that have been made on this point depart from the principle that an injection made in the tissues will be the less dangerous in proportion as its diffusibility is lessened; that is to say, that it should enter as tardily and slowly as possible into the circulatory torrent.

It was sought, therefore, to use as a vehicle for the introduction of cocaine, substances such as oil, vaseline and cacao-butter. After explaining their mode of use, we arrive at the following conclusions :

Such means, other than water, used in the transmission of cocaine, have the disadvantage of determining, by their presence in the tissues, all the accidents attributable to foreign bodies. They sensibly retard cicatrization, and many of them produce sphacel. From which we conclude that the use of vehicles other than distilled water appear to us to possess only disadvantages, with no profit whatsoever.

SOLUTIONS OF COCAINE—TITLES OF SOLUTIONS—SCHLEICH'S ANESTHESIA—QUANTITY TO INJECT—STERILIZATION.

Because of the reasons we have given, it is water we choose as a vehicle for chlorhydrate of cocaine. It remains to determine what title to give this solution. Cocaine being a toxic medicament, one should use as small a dose as possible, in spite of the fact of its being endowed with sufficient analgesic power. There

is general agreement to-day to recognize a 1 in 100 solution as sufficient.

The toxicity of cocaine depends, not only on the weight of the quantity of the injected alkaloid, but also on the quantity of water in which it is in solution. The greater the quantity of water used, the less inoffensive it is for the same amount of cocaine.

For the extraction of a tooth, one cubic centimetre of a 1 in 100 solution, that is to say one centigramme of cocaine, quite suffices.

Schleich employs even a feebler solution: 0 gramme .002, and even 0 gramme 001. But in this case, the anesthesia is illusionary and due simply to the mechanical distension of the tissues; similar results can be obtained by a simple injection of distilled water.

Ordinarily for the extraction of a tooth, we use one centigramme of cocaine. Under twelve years and above sixty, we reduce the dose to no more than one-half centigramme. We have never had an accident, and have yet always produced perfect anesthesia. In certain cases of complicated extractions, we inject as high as two and three centigrammes without accident, but conform, of course, to the precautions stated above.

We make use of fresh solutions, or extemporaneous solutions, or of solutions preserved in sterilized ampoules. The different processes of sterilization employed, and based for the most part on ebullition, are exposed at length in my memoir.

We therefore come to the conclusion that a cubic centimetre of a fresh and sterile solution of chlorhydrate of cocaine, one part to a hundred of distilled water, seems necessary and sufficient for practice in the majority of cases, and such a dose induces neither accident nor incident.

PRELIMINARY PRECAUTIONS—POSITION OF THE PATIENT— CONTRAINDICATIONS.

Here we lay stress on the precautions to be observed: the loosening of any clothes which might in any way impede respiration; a horizontal position, or at any rate one approaching the horizontal. There are contraindications, as cocaine raises the blood pressure; it is contraindicated for aortics and arteriosclerous patients.

Because of its depressive action it ought also to be forbidden for anemic individuals and those debilitated, extremely nervous or avérred neuropathics, and to those worn out with debilitating diseases. Should the patient present a general state which would seem to visibly predispose him to syncope, it were better to abstain. These contraindications are not absolute, but they are relative, and the more to be observed as the disease seems to arrive at a more serious degree.

THE AIM OF LOCAL ANESTHESIA FOR THE EXTRACTION OF
TEETH IS ANESTHESIA OF THE ALVEOLO-DENTAL
LIGAMENT.

When an injection of cocaine has been given for the extraction of a tooth whose pulp is exposed, and if at the very moment of extraction the pulp be touched with a sound, the patient is conscious of the pain of that touch, with no attenuation whatever, whereas the extraction itself is absolutely painless.

Where, however, the alveolo-dental articulation is inflamed, the pain is, on the contrary, the greater and the more intense, as the arthritis itself is more acute.

Consequently, it must be inferred that the pain of extraction is caused by the tearing of the alveolo-dental ligament, as a matter of fact; therefore, if the anesthesia by cocaine is to be effective, it must act on the nerve termini of this ligament.

THE TECHNIQUE OF COCAINE INJECTIONS.

1. *Instruments.*—As the gums offer quite a resistance to the injection, it is well to use a Pravaz syringe with a needle screwed on. Steel needles, by reason of their rigidity and the delicacy of their vent, are preferable.

2. *Sterilization.*—A great many of the accidents of infection attributed to the cocaine are really due to aseptic faults. We keep our syringes in a carbolic solution (5 in 100 with the piston drawn out, so as to keep the body of the pump and the piston-rod constantly in contact with the antiseptic liquid. The needles are to be boiled during at least five minutes, or held in the flame.

3. *Asepsis of the Operating Field.*—The mouth to be rinsed with boricated water, the gum washed with alcohol.

4. *The Injection.*—As the first puncture is liable to be somewhat painful, even with fine needles, we apply to the gum, previously dried, a 10 in 100 solution of cocaine, or else pulverized coryl.

After exposing the character of the tissues to be reached by the injection, we arrive at the following conclusions:

To insure the efficacy of the injection, it must be made at the level of the mucous membrane, which adheres closely to the periosteum, and consequently not too near the neck, neither too near the vestibular *cul de sac*.

The syringe, armed with its needle and held like a pen, is forced into the gum, not deeply, within the derma, at a point situated about equi-distant between the free edge of the gum and the presumed spot where the point of the root should be, obliquely in reference to the median region of the maxillary. A sufficient resistance is felt when injecting, and bit by bit the mucous membrane whitens under the influence of the cocaine.

One can be sure that the anesthesia will be excellent if the

piston pushes hard. If the liquid enters without resistance, it shows that the injection has been made in the cellular tissue and the formation of an edemous bulb will be determined. It were better, then, to withdraw the needle and begin again. Several injections are necessary—at least two—in order to surround the tooth with an anesthetized zone.

Adrenaline added to cocaine has given the best results, from the local as well as from the general point of view (Batlin and de Nevreze).

We then expatiate at length in our memoir on the different and various cases of extraction which may be presented, and we explain the modifications in the general technique of cocaine injection which must be made in regard to such special cases.

We make a special study of those difficult cases of injection at the level of the vestibulary surface of the superior second and third molars, and at the level of the lingual surface of the inferior second and third big molars.

LOCAL ANESTHESIA BY REFRIGERATION.

Pounded ice and pulverized ether have been used, but these methods have to-day only an historical interest.

After having studied the mechanism of anesthesia by refrigeration, paralysis of the extremities, of the sensitive nerves, and vaso-constriction, after having exposed the physical laws governing the evaporation of liquids, we arrive at a consideration of the chlorure of methyl and of ethyl.

1. *Chlorure of Methyl*.—Boiling point, 23 degrees below zero (centigrade). Produces therefore an intense cold, which makes it difficult to handle. We expose the stypage method (Gallipe), and conclude by affirming that chlorure of methyl is little used, because it infrequently causes eschars.

2. *Chlorure of Ethyl*.—Boiling point, 12 degrees above zero (centigrade). It is employed by pulverization on the gums. We cannot repeat here the manner of using it, which is treated at length in our work. We come to the conclusion that chlorure of ethyl renders real services, but that it can hardly be used but for the front teeth, and that the anesthesia produced by it is fugitive and not at all deep.

Finally, after a lengthy study of the properties, practical value, the mode of employing mixtures of chlorure of methyl and of chlorure of ethyl, of coryl, of anesthyl, we conclude that refrigeration carefully carried out constitutes an excellent method of local anesthesia for superficial operations.

MIXED METHOD OF LOCAL ANESTHESIA—COCAINE AND REFRIGERATION.

The successive use of cocaine and refrigeration renders the best services, whether to render painless the introduction of the

needle, to modify a fungus gum, or to supplant a difficult or impossible injection in certain regions.

After exposing all the indications, we conclude that, for us, this mixed infection, injection of cocaine and refrigeration, is the best method of local anesthesia.

A NEW LOCAL ANESTHESIA—STOVAINE.

Stovaine is a substance recently discovered by a French chemist, M. Fourneau, which offers certain advantages over cocaine.

1. Weaker toxicity. From experiments on rabbits and guinea-pigs, which we describe in our paper, it is shown that this difference of toxicity between the two substances is very great, in fact, cocaine is shown to possess twice the toxicity of stovaine.

2. This new medicament possesses a vaso-dilative action, while cocaine's action is vaso-constrictive. Consequently, with stovaine a patient may be operated upon seated.

3. Finally, stovaine costs very much less than cocaine.

It is about two months ago since we began using stovaine, that is to say, about the end of January 1904, upon the advice of Prof. Reclus. This surgeon has been employing it for several months in his service, and has obtained perfect results up to the present.

Personally, we have made a hundred injections of a 0.75 p. 100 solution of stovaine. We have observed no menace of syncope, no sickness ensues and we can affirm that the anesthesia produced is equal to that produced by cocaine.

CONCLUSIONS.

1. Complete anesthesia, because of the dangers and inconveniences it entails, should be the exception in dental surgery. On this fact is based the importance of local anesthesia.

2. Of all the methods of local anesthesia actually known, cocaine seems to give the best practical results.

3. Chlorhydrate of cocaine appears to us superior to all the other preparations which compete with it.

4. Distilled water is the best vehicle proposed for the transmission of cocaine.

5. In general practice, a satisfactory anesthetic is obtained, and all accident is avoided, by the use of one cubic centimetre of a fresh solution, in distilled water, of chlorhydrate of cocaine at 1 in 100.

6. When the injection exceeds one centigramme of cocaine, a horizontal position is called for.

7. In the extraction of a tooth, it is almost exclusively the rending of the alveolo-dental ligament that causes the pain.

8. The anesthesia is entirely dependent upon the manner of operating the injection. The after-effects depend on the asepsis.

9. After the operation, the patient should remain reclining one-quarter of an hour for one centigramme of cocaine, from two to three hours for a larger dose.

10. Well executed refrigeration constitutes a good local anesthetic, but only for very superficial operations.

11. The mixed method (cocaine injection and refrigeration) constitutes the best local anesthetic.

12. Stovaine, a new product, vaso-dilator, powerful local anesthetic, less toxic than cocaine, has given the best of results up to date.

DISCUSSION.

DR. NOLIN.—I shall be very brief on this question, as I have not really prepared a paper, not being fully conversant with the way this discussion would take place. I certainly am very thankful, as I am sure we all are, to Dr. Sauvez for his very able work on local anesthesia. I have personally been a partisan of local anesthesia for quite a number of years. It has certainly rendered me a great service, and I would not to-day undertake to practise without the use of cocaine. The first conclusion drawn by Dr. Sauvez is to complete a local anesthesia because of the dangers and inconveniences it entails. There is no doubt that there is a great abuse made of general anesthesia. With all the means that we have had in the administration of gas, and the better knowledge we have attained of ether and chloroform, the danger has been diminished to a great extent. At the same time, if similar results, and as great results, can be obtained without the dangers attended by general anesthesia, I think that the practitioner does not give this question sufficient thought. A professor of the Medical School of France has been using cocaine for the last fifteen years in general surgery, and in much larger doses than we can ever need for the extraction of teeth. Therefore the question of whether it is advisable or inadvisable to use local anesthetics having been disposed of, there remains the discussion of their efficiency. Dr. Sauvez says that local anesthesia seems to give the best results. A great many of my confreres whom I have met and who are favorable to the use of cocaine, base their opinions on experiments made by others and by themselves. If we analyze the causes of failure, we find that after two or three or four failures they entirely give up experimenting and decide that cocaine is not efficient. But there are different causes why cocaine will not be efficient. First, the solution may be deficient; secondly, the instrument may be deficient, and, thirdly, the patient may be deficient. You may strike a case where cocaine is contra-in-

dicated. Therefore, in order to have success with cocaine, there are three essential conditions: First, that the solution should be properly made and properly asepticized; secondly, that the instruments used, the syringe used, should be the right kind of syringe and in perfectly aseptic condition; and, thirdly, that it be not tried in cases where it is contra-indicated. In general practice we will find that the contra-indication happens in a good proportion of cases; but yet, hardly in any larger proportion than anything else. We will find the contra-indications in cocaine injections to be ten per cent., and I think when we can rely on ninety per cent., it is certainly worth while consideration. I have been astonished of late to notice in the reports of the different congresses and dental association meetings that this subject has not been more discussed. This paper of Dr. Sauvez brings more to my mind the reason why. He seems to conclude that in America there has been more attention given to general anesthesia, and local anesthesia seems to have been disregarded, and the advantages of it have not been fully set forth. Our confreres across the ocean have followed in the footsteps of Dr. ——, and such eminent surgeons, who have had more data to go on, and who have been braver than we are. A great many of us have been discouraged, not only by our own unsuc-cess in our first experiments, but at the same time on account of the dangers of cocaine. Now, the dangers of cocaine have been, to my mind, very much exaggerated. We have heard of a few accidents, even fatal accidents, which have occurred. I remember that one happened in Quebec a few years ago. I investigated that case in Quebec—not directly, I did not see the patient—but what I learned was, that in that case a five per cent. solution of cocaine had been used, while the very best of results from the local injection for the extraction of teeth can always be obtained with a one per cent. solution, and this fact seems scientifically established by Dr. ——, and others who have made a special study of cocaine, that the toxine effect of cocaine is diminished in proportion to its dilution in water, that is to say, that a dose of cocaine which would be fatal at five per cent would not be fatal at one per cent. though the same quantity of cocaine were administered. That is the conclusion that has been arrived at by the French Academy.

Then, again, another cause of unsuc-cess has been the ignorance of the operators on the technique of the operation. First of all, in regard to the sterilizing of the syringe. The ordinary dental syringe, to my mind, is all that is necessary—the all-metal syringe. This syringe has two points with leather buckles. These points are the points of danger that have to be attended to. I have had great satisfaction with the way in which I use my syringe, which is in two pieces, and which I separate the one

piece from the other, and which I boil, and I also have a collection of those leather buckles made in large quantities, and which I keep in a sealed bottle, and I replace it each time I boil the syringe. I never use the syringe again without boiling it. Those who have a great deal of extracting to do could have two syringes and use the one after the other. Then we come to the sterilizing of the cocaine itself. We have so many of these local anesthetics on the market which are sold at one dollar an ounce, which is a good price for a solution of cocaine, and which is worth only fifteen cents at the drug store, and I think it would be a great advantage if the dental supply companies would only give us an injection at a moderate price. I have been in the habit of putting up my own, or get it made up by the druggist. I agree with Dr. Sauvez that the after-effects of cocaine, such as irritation of the gum, are never caused by the cocaine itself, but are caused by either the instrument or the liquid. Now, where I differ with Dr. Sauvez, so far as my experience is concerned, is, that since I have been using cocaine, which has been for the last ten years, and I have made a rough calculation, and I have only had one accident during that ten years, and I will tell you in a moment how that happened; and I also find that the dose that he gives us as the danger point has been administered over and over again without producing the least sign of any intoxication. The accident that I have just referred to happened once, after I had received a sample of a local anesthetic which was allowed to be sold, and a patient came to me, and I used this sample in order to see what it was like, and it was guaranteed to contain less than one per cent., and I injected this, and the patient showed very bad symptoms, contraction of the hands and limbs, and numbness all over. She could speak, and she said that she felt fine. So I extracted the teeth. I took all the means that were necessary in the case of cocaine poisoning, and after a while I was successful in bringing her to again. I had such a fright that I decided not to use a local anesthetic. The same patient came to me again, and I refused to administer an anesthetic, and told her that I had given up using local anesthesia, and I told her that I would not give her gas or anything at all. So she said she wanted to have her teeth extracted without any anesthetic, and I proceeded to extract the teeth, and the moment I put my hand on the forceps and took hold of the tooth, the very same symptoms appeared, and I therefore came to the conclusion that I had a hysterical patient and I attributed it, not to the cocaine, but to the nervous system of the patient. Now, as far as the technique of the injection itself is concerned, I have found that in order to prevent the pain caused by the penetration of the needle in the gum, that if the margin of the gum in the interdental space is first very lightly punctured through the epidermis and the mucous membrane and a small pressure put

on the syringe, and the liquid pressed in gradually, that the first penetration can be made with a minimum of pain, and in the most of cases without the least pain at all. Now, as to the direction of the needle. The point of the needle is directed towards the centre of the tooth, towards the apex of the gum and the centre of the tooth, so that the second penetration is made in the white spot on the gum, and so on around the tooth. This, gentlemen, concludes my remarks on this very able paper, and I trust that when we meet again, two years hence, those members of the Canadian Dental Association who experiment on local anesthesia will collect the statistics and be able to give the results of their experiments to us, because I think that we can render a great service, both to the profession and to the public at large by doing away with the use of general anesthesia and replacing it by local anesthesia as much as possible.

THE PRESIDENT.—This subject is now before the Association for discussion. Has anyone any remarks to make?

DR. MORRISON.—I would like to ask the essayist one question. What is his experience in injecting local anesthetics into inflamed gums?

DR. NOLIN.—If you will refer to the essay, you will find the answer to this question. I will tell you that, as everybody knows, where cocaine is used it will give good results. In inflamed tissue we do not say to use cocaine when it is loose, because the gum is inflamed, and generally cocaine does not give good results. We do not proclaim that cocaine is the only local anesthetic that we must use. You can use a refrigerant where the tissue is inflamed. We do not say that you must not use general anesthesia, but we do say that in the majority of cases you can use cocaine; but you must not use it where you have an abscess or an inflamed tissue, because you have not got the perfect anesthetic? Is that what you asked of me?

DR. ALLEN.—I have had quite a bit of experience in administering local anesthetics. I have taken a great deal of time in regard to abscesses and gums in patients, and, if you take time, you will not give your patients very much pain. It is the hurry of putting the medicine into the tissues that gives the extreme pain. Then, for after treatment a little oil of cloves will keep down the extreme pain, and I find less pain with the anesthetic I use in these cases than when I do not use any. I have been using it now for a great many years, and now I use the anesthetic of the Dental Manufacturing Co. They call it I.D.L. There is a percentage of cocaine in it to about one-half per cent. of—

THE PRESIDENT.—Have you ever killed anybody?

DR. ALLEN.—No, sir. I might say, like Dr. Nolin, I have had a little experience in those cases where I think I have done serious damage. The symptoms were these: I extracted the

teeth. The patients stiffened up almost so stiff that they could not use their hands, and they got numb all over, their hands and everywhere, that you could slap them and they would not feel it. I took the teeth out, and they did not seem to get any worse. They remained for a little time in that condition, and it gradually wore off, and I gave them hot drinks and rubbed them well with my hands. I might make a remark that among ten per cent. of cases, that where a contra-indication happens that pain may be overcome in some cases with a great deal of patience; but in my opinion the best way is simply to abstain from local anesthetics in those cases. You will find that if you abstain from that, you still have a sufficient number of cases where such conditions do not exist, and the success of local anesthetics with patients is just according to the amount of discernment that the operator will put into it in deciding beforehand where the local anesthetics can be used, and when they should not be used.

DR. A. A. SMITH.—Mr. Chairman,—In reply to the question that Dr. Morrison has asked, and with reference to it, I think the question in regard to the inflammation of parts where an hypodermic injection be made is clearly a contra-indication of the uses of the anesthetic. Now, I am convinced that the point from my experience in the use of it is not the direct occasion of cocaine, because the same toxic effects will be given if the vessels are enlarged through the tendency or flow of blood to the part. The effect is not directly caused by cocaine, but it is caused by the fluid you are using passing into the blood vessels and being conveyed to the heart, causing heart depression, which is the cause of all this trouble. These are cases in which I absolutely abstain from using the local anesthetic. You might as well recognize the fact at the beginning that bad results are going to follow. Where you get resistance going into the gum you have a perfect case for local anesthesia. The injection does not go beyond the part locally, and as soon as bleeding occurs after the operation, after the gums have been lacerated and the teeth taken out, it is all eliminated from the tissue. If it has passed into the blood vessels trouble will ensue in every case, and I would advise that local anesthetics be not used in those cases. I have not had any trouble of late years, but until I realized that fact I had several cases that almost made me decide to quit the use of it, and do no more experimenting with it.

DR. CROSS.—It was my great pleasure to be present at a meeting of the Society at Chicago, where the paper under discussion that night was "Cocaine," and I must say that I have been interested in the subject ever since. I am very glad, indeed, to find out that this eminent Frenchman has prepared a solution of cocaine that is almost absolutely harmless, because we have no general anesthetic that is perfectly safe. I was discussing local anesthesia with a friend of mine, who has a large experience,

and he said that he saw a couple die, and had claimed that there was not a general anesthetic that was safe.

DR. BARBER.—It may be just as well to have a little of the other side. I had considerable experience with local anesthesia. Some ten years ago I used local anesthetics, and principally a solution of cocaine about one per cent., and I followed that up very persistently, hoping that there would be a revision in my method. However, my experience was not anything more than the money-making part of it, and I gained a reputation for extracting that I have never recovered from, and I am sorry to this day that I used it. I never use anesthetics now unless I am forced to, and then I very seldom use cocaine, and if I do use that, it is the minimum amount that I use, and I do this because of the very unpleasant experiences which I have had in connection with it. I can just admit that I have not had any death, but I have come so near it that I just simply saved the undertaker. This has occurred on more than one occasion. I have repeatedly had to use an injection of nitrate of glycerine, of which I always keep a supply in my office. I am also free to admit that I have had local trouble, but the constitutional effects I must put on cocaine. I have tried myself to get a local anesthetic that would be effective, and I have tried various advertised preparations. I have used chloride, and those other drugs that would seem to have no better effects. I am very glad to say that that I have graduated from cocaine.

DR. NOLIN.—The gentleman who has just spoken seems to condemn cocaine off-hand, but it takes a little more than that to decide the question. I would ask if the doctor is perfectly sure of the percentage of cocaine he used in every operation where he had bad success.

DR. BARBER.—I would say there was a definite knowledge of it; but in many cases I have used doses where I simply had to take the words of others for it.

DR. NOLIN.—In any case where there is a number of teeth to be extracted it has taken me years to convince myself of the dose of cocaine to be used, and having satisfied myself as to the quantity to be used, I was free to use it.

DR. ALLEN.—I might say that after using those anesthetics, especially the one I have mentioned, which has given the best satisfaction, it is hard to believe that the doctor is not mistaken in the percentage of cocaine that is used, or something of that kind, because I never had to call in a physician since I started to use it, and I have used ounces sometimes where the gum would not hold, where the gum seemed hard, and I had to just pour it down. I want to recite one experience which might show, perhaps, that the doctor has mistaken some of those cases as the trouble from anesthetics. I had a lady in one day who was suffering from heart trouble. She said her heart was weak, and

she wanted to have the teeth taken out without pain. Well, I went to administer the anesthetic, and, of course, she was all worked up and nervous, and she thought she was hurt whether she was or not all the time I was administering that anesthetic, and she was in a great state of nervousness, but the teeth came out without hurting her, and she collapsed, that is, she thought she was going to die, and she said she was ready to die, and made remarks of that kind. I would not let her lie down, and I kept her sitting up. She was bound up as tightly as she could around the waist, and we got the bands loosened. I told her there was simply nothing the matter with her, her heart was troubling her somewhat. Her trouble was there. I was very cool about it, and in about fifteen or twenty minutes she was quite happy and all well again. But that was her trouble—her heart—it was not the anesthetic. Another experience to illustrate this: One day I was going to extract a nerve, and I put cocaine on the nerve, and as I was doing that—he was a healthy young man—he tumbled over in a faint and took one of those fits, and fell over on the floor, and worked his mouth, and I threw back the chair a little and let his head lay down until he recovered, and we finished our work. He had another one to be attended to, and I told him he had better not have the other one done that day. I asked him if he was hurt, and he said, "Not at all." I said, "Very well, come in some other day." He came a little while after that, and we had no trouble at all, and I extracted the nerve, and he said he could not understand why he fainted.

DR. MAGEE.—One point in the remarks of Dr. Nolin in speaking of this, and of which I think we ought to take a great deal of note, and that is in reference to keeping the patient quiet for some time after the anesthetic has been produced. All anesthetics, I think, should be followed by rest, and we cannot be too particular about that. After having administered an anesthetic it is a great mistake to let the patient get up and walk around. That was strangely manifested a few years ago in Montreal when, after the doctor had given an anesthetic, the young man immediately got up off the table and walked up the middle of the room, and he immediately collapsed. I think we should all take great note of that and keep people quiet for a little time at least. If, as Dr. Nolin said, and I know it cannot be wrong, all the toxine effects have been eliminated from cocaine, I do not see why this material, which has been brought to our notice, will not prove a great boon. The conditions that Dr. Allen has been stating are not such as would be attributable to the effects of cocaine.

DR. HANNA.—We very frequently hear the statement made that the dangers or the conditions after the use of drugs are exaggerated by operations. As I have listened to remarks of

this kind, not only on this occasion, but on many others, I often form the impression that the principal exaggeration in connection with local anesthetics is not septic. If such were the case previous to antiseptic and aseptic surgery, half the population would have been destroyed by blood poisoning or septicemia. Physicians of twenty or twenty-five years ago, and previous to that, as well as dental surgeons, never thought of such a thing as even regularly cleansing their instruments. Now, from my own experience, and more extensive observation, I am satisfied that the septic conditions that have been produced from local anesthetics or the use of local anesthetics is not from the foul syringe, it is from using an injection of any kind when the condition of the tissues are contra-indicated; that is to say, when there is any formation of pus around the sac. In the case of an abscess, when the patient comes, ninety-nine times out of one hundred it is to have it extracted in order to get relief from the pain caused by the accumulation of pus, and the surgeon takes his syringe, aseptic as it can be, and injects twice the quantity of fluid into the pus sac, which is already extended, and consequently it drives the pus into the surrounding tissues, and you have the cause of blood poisoning. There is no question in my mind that that is the cause, and not the septic syringe. I want to ask Dr. Nolin, or any other gentleman present, for a satisfactory solution of my dilemma in connection with the use of cocaine. I was, I think, one of the earliest users of cocaine, always having a prejudice against general anesthesia for teeth extraction, always contending that the condition and not the patient was to be first considered. The condition of anesthesia is necessarily one of danger to the patient and grave responsibility to the individual who induces it. The condition, whether induced by a drug or in any other way, is one of danger, and he who says that anesthesia is perfectly safe forgets that the drug may not be dangerous, but the condition is. For this reason I have always hesitated to use a general anesthetic for teeth extraction, and I hailed with satisfaction the first intimation that I found of a local anesthetic declared by good authority to be effective, and which intimation I got from the current American medical literature. My first purchase of it cost me \$1.25. Now, Mr. President, the question I want to ask is, How is my experience with the quantity and the strength of solution to be accounted for? For several years, at least for three years, I followed that indication of ten per cent. solution, and went frequently as high as two grains at one operation, and I never had a case of what we understood now as cocaine toxine. I have had a lady as drunk as the proverbial Irish piper, as much excited and exhilarated as two good drinks of brandy would produce, but there was no depression. After others had found out that it was a dangerous drug and produced dangerous

effects, our own dental literature cautioned the profession against the use of solutions, and I began to be cautious myself. I have had serious experiences where I did not look for it, and I wish some gentleman of experience and erudition would tell me how you are going to deal with contra-indicated cases, and the idiosyncrasy connected with the use of any anesthetic. My first trying case was that of a middle-aged, robust and vigorous man, whom I never heard of having had a day's sickness in his life, and I do not think I had injected three minimis before that man showed cocaine toxine that you all know of, and for two hours and a half I was very anxious indeed, inasmuch as I was alone in my office and could not go for assistance, as I dare not leave him, and I was very much relieved when I was able to have a carriage call, and I sent the man home. I may say that I do not use cocaine now, because it is such a peculiar agent that I do not know what it is going to do. I wish to ask, Mr. President, if anybody's knowledge or experience will explain my experience in the use of cocaine?

DR. ABBOTT.—I move that this paper be passed. No doubt it is of great interest, but there are a great many other things to be considered. I think that the essayist should have an opportunity to reply.

DR. NOLIN.—I would just say that the question of idiosyncrasy exists in the administration of any drug and in the accomplishment of any operation, and that is my answer to Dr. Allen so far as idiosyncrasies are concerned. The idiosyncrasies of some people are such that they would die from the administration of pure water.

SOMETHING ABOUT BRIDGEWORK.

BY W. WUNDER, D.D.S., TORONTO.

We who remember the discussions in the dental journals of the years 1883 and 1884, and who have watched the evolution of modern bridge work since that time may be pardoned for looking optimistically on the future of not only bridgework, but also on porcelain filling, and indeed, on the future of dentists and the dental art.

In those years modern bridge work was in its infancy, and as is porcelain to-day, was attracting the attention of the whole dental world. The bridge work of that time was indeed crude and unsatisfactory, resembling but little the cleanly and strong bridges we make with such ease at the present time. Strength and beauty have ever contended, and in the near future I see their union in a perfect bridge.

I shall endeavor in a short paper to state a few of the diffi-

culties we have overcome, and mention my method of overcoming them, hoping if you do not receive any benefit direct from my suggestions they will bring about a discussion which may result in benefit to us all.

For our impressions we soon found that the only possible substance was plaster-of-Paris, and impression compound, wax mouldine and substances of a similar nature must be discarded if we wish satisfactory results.

In our porcelain-faced abutments and dummies we were met with a number of difficulties and were compelled to choose between lack of color and translucency and lack of strength. When we let our backing run only a little above the pins, as had been our custom in our gold plates, we found our facings would not withstand the strain of mastication.

To remedy this a number of means have been adopted, Bryant's repair outfit, Mason facings, reinforcing the tip and the use of Davis and diatotic crowns instead of facings.

The latter two methods I use in my practice as indicated.

Where a Richmond or other pivot tooth is used it is well to use Davis crowns instead of facings, making caps for the roots and grinding Davis crowns to fit, then making cups for them and soldering. For the dummies cups are made to fit the Davis crowns, which have been previously ground to fit the gum, over which has been laid a sheet of wax the thickness of the gold to be used in the front, slightly thicker behind. After these have been properly articulated on wax the porcelain may be removed, and the bridge soldered without danger of discoloration, checking, etc.

By this method we get the natural color and translucency we so much desire, and in case of breakage of the porcelain, can repair in a very short time. I may say, though perhaps unnecessary, the porcelains are best cemented with melted sulphur.

My method of reinforcing the facings is by grinding them from the pins to the cutting edge and making a backing which extends one-eighth of an inch above the cutting edge. In soldering leave this backing exposed its full length, and let the solder flow over it. This will, when sawed off, give the required thickness at the cutting edge. Grind the backing with wet wheel running toward the porcelain.

This method I deem most satisfactory when no pins are placed in the roots, as in those restorations of the lower front teeth, which are, I think, best done with open-faced crowns, and all cases where shells or open-faced crowns are used. In case of breakage it is very easy with crown slitters to take a bridge, made in this manner, off and replace facing. It seems unnecessary therefore to use the other method.

Allow me to say that I use open-faced crowns in other places than on the lower incisor teeth and to me it seems inconsistent

on the part of those who advocate porcelain fillings to denounce properly made open-faced crowns on thoroughly well prepared and suitable teeth.

My personal opinion is that when an open-faced crown does not last a reasonable time, the dentist has not reinforced it on the tip and all around the crown, and it has stretched and pulled away from the tooth allowing the entrance of microbes and foreign matter.

Where a bridge extends from a molar to a reasonably sound cuspid in a middle aged man, or where appearance is of less importance than strength, I would hesitate to either cut off the crown, and place on a Richmond or drill into the lingual surface and face with plate and put in a pin.

It is well to put bridges, having open-faced crowns, on with white gutta-percha.

The seamless crown, with its beautiful contour and nice points of contact (most important points of all in a crown as regards comfort), will replace entirely the cusp and band crown, as the pressed tin utensil has replaced the soldered one.

A few words regarding dummies. In replacing a short tooth, or in filling the vacancy left by a single molar where it is necessary to leave considerable clearing space between the gums and the dummy, the all gold dummy made very easily with a Morrison outfit is most sanitary and strong.

For bicuspids and molars diatoric teeth, made in the same manner as described for Davis, answer my purpose better and are much more cleanly than a backed facing.

Where a gold cusp and backed facing is used, and I would not use that method if other methods would answer as well, one, perhaps new to some present, is in my hands reasonably successful.

Bevel the facing from pins to cutting edge, back projecting backing beyond the tip, but do not bend the pins, make cusps in die plate to suit the case, place in proper position and carefully remove in soldering pliers. Solder with twenty karat solder where they unite. Cut off surplus backing and adjust to facing, bending pins. Articulate cusps by bending upward into place. By this method a very nice joint can be made between the porcelain and the gold, and as no borax can get at facing there is less liability of checking. It also does away with the difficulty of getting the solder to flow into the joint.

In conclusion, I see the time coming when the mechanical dentist, with his beautiful sometimes, but almost always poor fitting bridge, will be a thing of the past.

I owe the members an apology, as my paper is hardly what one would expect from the notice card. Your president asked me a month ago to give a paper on bridgework. I said I would do it if he would arrange for a number of papers on the subject

as he had on porcelain fillings. I thought nothing more about the subject until he telephoned a week ago. I wrote this paper that evening and have not had time since getting notice card to either change it or write a new paper. Indeed, I hardly knew what was desired, but think papers of a practical nature and containing personal methods are what we should have at the Toronto Dental Society.

MAKING OF THE MATRIX FOR INLAYS.

BY A. J. HUSBAND, TORONTO.

Read before the Toronto Dental Society.

The materials used for matrices for porcelain inlay work are gold and platinum.

Gold is used for the so-called low-fusing and platinum for the high-fusing bodies.

Having the cavity properly prepared, and using gold for the matrix, take a piece of the foil prepared for the purpose (No. 30), large enough to generously overlap the edges of the cavity, trim the edge corresponding to the cervical border of cavity to an oval shape and turn it over at a right angle sufficiently narrow to allow of admission between the teeth. Slide the gold to place, and with small pieces of soft punk, using blunt-pointed pliers, gently and carefully work down to the bottom of cavity, avoiding a puncture if possible. Continue to add pieces of punk, working towards the walls until nearly full; then take small pieces of chamois skin, and with them under the burnisher work the gold over the edges of cavity, making a well-defined margin.

Having satisfied yourself that you cannot improve the matrix, gently pick out the punk, holding the matrix in position, and in its place pack gum camphor until full; this maintains the shape of matrix and facilitates its withdrawal. The dislodgement is a very particular part of the work and must be done with great care and nicety. At some point gently insert a fine instrument under the edge of metal, and if the matrix does not jump out, try another point opposite; if this is not effectual, you may rest assured the cavity is undercut and must be remedied. The matrix dislodged gently, coax it from between the teeth. Now make a batter of fine asbestos powder in water and work a little of it in the crevice made by the edge of cavity, fill the tray with the mixture and lay the matrix in it, gently jarring until the investment creeps up over the edges. Dry out gradually and burn out the camphor when the body may be built in.

When platinum is used, the metal is one one-thousandth of an inch in thickness and manipulated in very much the same manner as gold, except that more vigorous treatment is used around the edges on account of the harsher nature of the material. The instruments submitted to your examination are very useful for defining the edges.

Inasmuch as an investment is not used, the same care to avoid a puncture is not necessary.

In adding the body, do not more than half fill the matrix; with a pin or other fine instrument make one or more cross sections through the body to prevent change of shape of matrix; bring to a biscuit in the furnace, by which process all the shrinkage takes place; return to the cavity after trimming surplus platinum off, and holding steadily with one hand, with the other carefully go over the edges with those inlay instruments, burnishing closely to the margins. For small inlays one or more bakings will do; for large ones several bakings are required.

Selections

ADDRESS ON JOHN HUNTER

BY F. J. BENNETT, M.R.C.B., L.D.S., LONDON.

It is probable that all of us have at one time or other read one at least of the celebrated "Hunterian Orations," and have learned the story of Hunter's life.

Born in the lowlands of Scotland, in 1728, Hunter was averse to books and routine education till close upon manhood, when his ceaseless energy began. He first became assistant in his brother's anatomical school in London. Here his dissections and investigations kept him perpetually occupied till a threatened breakdown in health induced him to accept service for a time as surgeon in the army. He was present at the siege of Belle Isle, and in the Peninsula. Returning to London in 1763, he commenced practice as a surgeon, married, became F.R.S., was appointed to St. George's Hospital, and later was Surgeon-General to the British Army. His great reputation brought him to the highest position, which he occupied till his sudden death from angina pectoris on the steps of St. George's Hospital in 1793. On his tomb in Westminster Abbey he is described as the "Founder of Scientific Surgery." In commemoration of the hundredth anniversary of Hunter's death, Mr. Holmes remarks, "What better employment for the opening of our session than to contemplate

the great example, how success and glory is reached in our profession, the example of a man whose soul was given up to his science, who cared nothing for rest, nothing for amusement, nothing for money or rewards; who passed a hard life, chequered with sorrow and privation, embittered by opposition, tormented by disease, and darkened by the prospect of death coming with all his projects unfulfilled, yet a life passed in continual pleasure, the pleasure of thinking, in which he took such a delight, and the delightful occupation of building up his great museum and pursuing his endless research into nature, an occupation to which he willingly sacrificed money and leisure and health and everything that lower natures covet, or rather did not so much sacrifice them as pass them by unnoticed. The result is that now, a century after his death, Hunter's fame is infinitely higher than it ever was in his life."

Again he adds: "Yet he succeeded in what no man up to that time had even attempted, *viz.*, in uniting together natural philosophy, zoology, physiology, pathology, and surgery, and teaching the art to which he devoted his mighty powers as a branch of the general science of nature."

The points of view from which he formed his great museum we learn from his friend and pupil. "When," says Abernethy, "he met with an animal he had never dissected, he cared little by what name it was called, to what family it belonged; he chiefly wished to know how its food was digested, how its blood circulated, how it respired, what were its feelings, instincts and habits, how it secured or defended itself from injury, how the multiplication of its species was effected and insured."

I now come to the most memorable event in his life so far as we are concerned. I mean his great book on "The Natural History of the Teeth." It was his first published work, and though it is generally thought that his masterpiece was the treatise on the blood and inflammation, in so far as it allows of deep and wide speculation into the processes of life, yet nowhere does the accuracy of observation and the originality of explanation appear to greater advantage than in the treatise on the teeth. Alluding to this work, Mr. Holmes says: "The anatomical and physiological portion of his work has received the enthusiastic praise of one of the best teachers of our day, Mr. Holden, and it deserves it, for Hunter is never seen to more advantage than in anatomico-physiological description. There he is never labored, never obscure, never wearisome, his reasoning is usually as clear as his description is terse and luminous."

"Hunter's writings," says Mr. Holden, "teem with examples which show what an impressive teacher he was, how supreme was his skill in turning all his knowledge to account, and with what happy enthusiasm he started others on the road to gain knowledge for themselves. To take a single instance, I would especially

point to his description of the organs of mastication and digestion. When I first read it, it filled me with astonishment, 'Would to heaven,' I said, 'that we had the whole of anatomy described in this powerful way; we should hear fewer complaints of its 'dryness and dulness'! The language is so lucid, so terse, and withal so pictorial. There is an interest too and a charm in every detail, and with each fact is given some illustration, with all the text its full and proper comment.'

Nevertheless, to read aright a treatise like "Hunter's Natural History of the Teeth" in the present day is no easy thing. For instance, his dissection of the developing teeth as they lie in their crypts and his notes of their relative advance in calcification, seems at first sight crude enough. But this is stale reading only in the light of what we now know, and we must read it picturing the utter darkness and dearth of knowledge of those early days, the complete absence of any previous suggestion as to the mode which Nature had adopted to bring about her results. The magnitude of his work then becomes clear. In the present day it is well nigh impossible to view these things first hand as he saw them, for we are prepared to see the thing we look for long before we commence our dissection. Notwithstanding all this, such subjects as erosion, or decay by denudation as he called it, have hardly been improved in our own time. So, too, the description of the repair of dentine after attrition, and the details and measurements of the growth of the jaw backwards are quite unassailable after a hundred years. The proof, too, of the non-vascularity of the dentine by the experimental feeding of animals with madder is quite a model of logical reasoning.

To read the treatise on the teeth then as we read a book published in the present day, is to see it all out of its true perspective. By an effort of the imagination we must live in the time when Hunter wrote; by means of the Hunterian orations, which have been delivered almost every two years since his death, we may climb as by a ladder, step by step, till we attain this point of view; by drawing upon these great writers we get a complete picture of the life and surroundings of the men. Not till then can we judge the treatise adequately. We then see it in its correct proportions, massive, true, and original, blocked out rough from the master's hand; wanting in the clearness, detail, and finish which it has since received by successive generations of workers; but in the main outlines it is strong and unaltered, and is the basis and foundation of the teaching of to-day. John Hunter was the founder of modern dentistry, because he was the first to establish it on sound scientific principles.

In another aspect the treatise is unique. Clear the mind of all that has since been added and weigh the arguments one by one which he brings forward on the various subjects, regardless of the modern verifications or the reverse; it will be an abiding

lesson in independent thinking, sound and suggestive, and a training in the methods of research.

But the greatest triumph and glory of the work I believe to be in the moral effect it had on the dentists who lived in his time and in the fifty years after his death. It lay in the fact that a man of Hunter's great genius and intense occupation should have thought fit to write on dentistry at all with a mind so full of vital questions, yet it was one out of the four of his published works.

I say, the moral effect was such that the dentists awoke as it were with a start; it gave to dental matters a new life and a new meaning, brought, as they were, into their place, and treated as part of the body generally. From the lofty platform which Hunter had raised, they could discern a nobler future; they were encouraged and stimulated to better work. As a result, it set in motion a wholly new class of dental literature, modelled in a worthy and scientific style. Thus we have a thesis for the degree in medicine, written by Blake, in 1795, on "Structure of the Teeth in Man and Animals," and with J. Fox Bell and Nasmyth they cease to be addressed to the public. All is a blank before Hunter's time, or merely a few scattered grains of truth, yet all is improvement afterwards.

But that which the thinking dentists regarded as a noble message and an injunction for them to endeavor for themselves, the medical world regarded in a different manner. They could not see how Hunter could bring himself to regard dentistry as a subject worthy of his time and great abilities, for they regarded dentistry as the merest mechanical drudgery, affording no opportunities for either great skill or knowledge; and this is the essential point of the whole question. What is your conception of dentistry? On the answer to that question turned the whole of modern dentistry at the end of the eighteenth century, and on the answer to that question will turn the progress or the reverse of dentistry as long as it continues to exist. In steeping ourselves in the aims and ideals of Hunter, we shall find an infallible criterion which may be trusted to carry us. I am convinced, at all times into the front rank of progress.

It has been said that John Hunter's death was accelerated by overwork. Professor Pasteur would probably have suffered a similar fate, but the world had come to see that though it could not produce, at will, a man of genius, it could at least assist in carrying on his work. The Pasteur Institute was therefore built, and now dozens of such are to be found at home and abroad. Of the latest of these I may mention the School of Tropical Medicine, rendered possible by the influence of the Colonial Secretary. What fresh conceptions do such ideas suggest to us?

In the act of respiration, and also by the ingestion of food, the oral cavity is liable to contamination, and is the point of

departure of various diseases. It is, therefore, every day becoming more and more the focus of attention by scientific observers. We ourselves require observers, specially retained, as it were, for the investigation of the germs which specially affect the teeth. I do not imagine we should require to go outside our own profession to find such men, but I do affirm that such work would require their whole and undivided attention, and for this provision would have to be made either by some public body or by private munificence. How this is to be brought about does not concern us this evening, but it might well afford subject for debate hereafter. I have shown that John Hunter had the fullest confidence in the future of dentistry; that the founders of our Society echoed this feeling; that both in their way worked to ennable it, to place it side by side and ever-advancing with the most enlightened ideals of medical science, and I am quite firmly convinced that these aspirations will one day be fully realized.—*Odontological Society, London.*

GOLD INLAY WORK.

BY C. H. WRIGHT.

In building and contouring I am in the habit of using 22-karat gold, such as is ordinarily used in making gold crowns. The clippings from such work may often be used to good advantage. Cut pieces in sizes and shapes according to the case in hand. Have each piece fluxed, being also careful to avoid an excess of this material. Usually small pieces are first adjusted into the deeper depressions, upon which are successively placed as large pieces as will fit the surface without bridging over too much, until finally one or more pieces, which extend from margin to margin, may be adjusted. Then, if a rounded contour is desired, shorter pieces may be successively used from this point. It is a process of piling up a framework or skeleton of these pieces to be filled in and covered with the solder. Any contour desired may readily be secured by piling up properly shaped pieces.

It is my habit before using solder to cover the surface of the matrix as well as possible with the pieces before mentioned and using as broad pieces as can be adapted. By careful observation of these details we are able to avoid any shrinkage. After placing as many pieces of high-grade gold as will stay securely in place, distribute properly shaped pieces of 22-karat solder at

such points as will permit a free flowing under and around the pieces.

In using the blow-pipe avoid applying the heat too suddenly upon the gold. Heat the investment thoroughly first, directing the flame gradually toward the gold, and just as the various pieces of solder are about to fuse throw the heat to the part desired to flow first and then to the other parts. Add the pieces of high-grade gold and solder in the manner described until the inlay presents the proper contour and surface. Immerse in acid and dress it down with suitably shaped wheels, discs, etc., being very careful to grind toward the margins to avoid injuring them by tripping; also, allow the wheels to barely reach the margin.

Now the under surface must be roughened. If, as is often the case, there is a lining of cement over the floor of the cavity, the inlay may be invested in plaster in an inverted position and sharp spurs turned up with an excavator, some of the cement being cut away to accommodate them. If the cavity is without this lining the surface may be roughened by drawing a sharp excavator over the surface repeatedly, or by drilling small holes or carefully filing slots in the surface. Occasionally, in cases where it may seem desirable, a hollow space may be left by first adjusting a concave piece of platinum foil or pure gold (concave side down) upon the floor of the matrix, avoiding the use of flux on the under side and on the matrix at this point. This creates a cavity which the solder will not enter.

The building of the inlay may then be continued as before described, and when finished the space may be opened liberally through the matrix. Upon insertion this space is filled with cement, thereby greatly increasing the retentive strength of the inlay and practically eliminating its conductivity.—*Dental Review*.

DEATH UNDER NITROUS OXIDE.

JOHN G. OWEN, M.R.C.S.

The rarity of deaths under the administration of nitrous oxide gas makes it desirable to record every case, since no generalization as to possible dangers can be arrived at through any single individual's experience.

The patient was a female cretin, aged eighteen, of keen and well-educated intellect, but barely three feet tall and almost unable to move about. She had had gas before, and is said to have taken it well, and she had no fear or apprehension in taking it on this occasion also. She took it very well, and went under

very quickly, but was noticed to be much more cyanosed than is usual. A single tooth was quickly extracted and she appeared to be coming around, but had a slight convulsive movement of the hands and limbs and ceased to breathe. Artificial respiration—persisted in for an hour—brandy, injection of strychnine and the battery failed to restore her.

The post-mortem examination revealed an extremely thick skull cap and an apparently normal brain and membranes. The larynx and air passages were clear; there was no trace of thyroid gland to be seen, but a large persistent thymus; the heart weighed seven oz., which did not seem disproportionate to the size of the patient; the mitral valves were thickened and incompetent, but there was no hypertrophy of the ventricles, so it is not surprising that there should have been no murmur. No other lesions were found.—*British Medical Journal*.

ARTICULATION OF TEETH—A JUDGMENT OF INTEREST TO DENTISTS.

The plaintiff, a man about eighty years of age, had gone to the defendant, a dentist, with an upper and lower set of artificial teeth which had been made for him some months before when he had his teeth extracted. He wanted the teeth made over, and the defendant undertook to do his work, but only after he had explained that owing to the plaintiff's advanced age, he could not guarantee that he could wear them satisfactorily. The dentures were made and paid for, but the patient could not wear them successfully. He returned several times to have them adjusted or fixed, and was always told that the teeth were all right; that what he needed was patience and practice, and that the fault was entirely his own. But when he put these teeth in his mouth in court it was shown that they occluded on one side only, and that the anterior teeth could not be brought together at all. In about a month or six weeks he went to another dentist, who made him a new set, which he wore with comfort and satisfaction. He now brought suit to recover the fee paid the first dentist.

The defendant claimed that during the time after the natural teeth were extracted until the plaintiff came to him, a change had taken place in the temporo-maxillary articulation, due to the atrophy of the muscles and absorption of the bone around the joint. This change, in turn, altered the relative position of the

upper to the lower jaw. When the teeth he made were first put in the patient's mouth, they articulated all right, but the wearing of them caused the jaws to resume their natural relative position to each other, and this caused the joints and muscles to again become normal. It was this that changed the articulation of the teeth and made them faulty. It was his intention, as soon as these changes had taken place to reset the teeth again. but just as conditions became favorable, the plaintiff went to another dentist.

This was the only expert evidence given, and no other witnesses were sworn.

The court held that a guarantee in a case of this kind is immaterial. When a person engages a dentist he is entitled to at least average skill and work. The fact that defendant got teeth so soon after the defendant failed was evidence that defendant was at fault. Judgment for plaintiff, with costs.

Proceedings of Dental Societies

ANNUAL MEETING OF THE ONTARIO DENTAL SOCIETY, MARCH 13, 14, AND 15, 1905.

The sixteenth annual meeting of the Ontario Dental Society will be held at the Royal Dental College, Toronto, on March 13th, 14th and 15th, 1905.

Officers: Hon. president, R. E. Sparkes, Kingston; president, A. W. Thornton, Chatham; vice-president, R. J. Mitchell, Perth; secretary, Guy G. Hume, Toronto; treasurer, R. Gordon McLean, Toronto; archivist, W. E. Willmott, Toronto.

District Representatives: No. 1, A. A. Smith, Cornwall; No. 2, W. Adams, Whitby; No. 3, W. G. L. Spaulding, Toronto; No. 4, F. Hansell, Hamilton; No. 5, P. P. Ballachey, Brantford; No. 6, W. A. Brownlee, Mount Forest; No. 7, A. E. Santo, London.

Supervisor of Clinics: Chas. E. Pearson, Toronto.

Exhibit Committee: W. E. Willmott and Geo. Gow.

Programme Committee: R. G. McLaughlin (chairman), A. E. Webster, G. S. Martin, W. Cecil Trotter, Wallace Seccombe, (secretary).

PROGRAMME.

Monday, 13th March.—2 p.m., registration and admission badges; 2.30 p.m., President's address; 3 p.m., "The Phenomena of Susceptibility and Immunity in Dental Caries, as they affect us in Operative Dentistry," by Dr. C. N. Johnson, Chicago, dis-

cussion to be opened by Dr. J. B. Willmott, Toronto; 8 p.m., "Sensitive Dentine," by Dr. F. T. Coghlan, Guelph, discussion to be opened by Dr. Jno. Robertson, Ottawa, and Dr. E. Cunningham, Parry Sound; 9.30 p.m., nomination of officers.

Tuesday, 14th March.—9 a.m., Inspection of exhibits; 10 to 12 a.m., Clinics; 2 p.m., "Oral Prophylaxis," Dr. W. C. Davy, Morrisburg, discussion to be opened by Dr. A. E. Webster, Toronto; 3.30 p.m., "Ethical Relations," Dr. M. G. McElhinney, Ottawa, discussion to be opened by Dr. G. E. Hanna, Kemptville; 5 p.m., election of officers; 8.30 p.m., annual banquet.

Wednesday, 15th March.—9 a.m., Inspection of exhibits; 10 to 12 a.m., Clinics.

District No. 1.—"Gold Filling with Tin-foil Margin," R. E. Sparks; "Gum Shellac as a Matrix for Contour Gold Fillings in Anterior Teeth," A. A. Smith; "Lining of Cavity with foil to Prevent Discoloration in Amalgam Filling," W. B. Cavanagh. (Incomplete.)

District No. 2.—Selected, Geo. Hermiston. (Incomplete.)

District No. 3.—"Treatment of Sensitive Dentine," J. W. Armstrong; "Technique of Applying Land's Cement Media and Some of its Uses," C. A. Corrigan; "Model Laboratory," W. E. Cummer; "Restoration of Broken-down Lateral with Porcelain Crown," R. O. Dickson; "Something in Porcelain Work (Porcelain Crown with tube anchorage on abscessed root)," A. S. Edwards; "Amalgamation and Manipulation of Dental Alloy," A. A. Smith; "Gold Filling," F. C. Van Duzen; "Repairing Gold Filling without Cutting Tooth or Filling," H. Hudson; "Gold Inlay," A. D. A. Mason; Selected, H. Clark; "Gold Inlay," E. C. Abbott; "Gold Inlay," Geo. Gow; "Gold Inlay," R. G. McLean; "Prophylactic Attachment for Dental Engine," J. Mills. (Incomplete.)

District No. 4.—"Pulp Capping," F. R. Watson; "Tin and Gold Filling," W. C. Gowan; "Gold Filling," Roberts, Brantford. (Incomplete.)

District No. 5.—(Incomplete.)

District No. 6.—"Gold Filling," A. Hartman. (Incomplete.)

District No. 7.—R. C. Brophy, Chicago. (Incomplete.)

EXHIBITORS.

S. S. White Dental Manufacturing Co., New-Davis Dental Manufacturing Co., Temple-Pattison Co., C. H. Hubbard Co., J. E. Wilkinson Co., and Detroit Dental Manufacturing Co.

ONTARIO DENTAL SOCIETY BANQUET.

The Programme Committee of the Ontario Dental Society appointed a Dinner Committee, consisting of Drs. Trotter, McDonagh and Kennedy, to arrange for a dinner. This committee has arranged for a sumptuous banquet to be given in the fine

large banquet hall of the Queen's Hotel on the evening of Tuesday, March 14th. An orchestra will be in attendance, and several fine vocal selections will also be rendered during the evening. Some excellent speeches are expected from our guests from across the border and from our Ontario orators. The committee intend to make this the most attractive banquet ever given in Toronto, and hope to be able to sell the tickets at one dollar each. In order to insure the success of this event, members are particularly requested to purchase their tickets at the same time they register and pay their fees. Evening dress will be entirely optional. Address all communications to W. Cecil Trotter, Chairman, 412 Bloor Street West, Toronto.

A novel feature of this meeting will be a model dental laboratory in operation, under the direction of Dr. W. E. Cummer, of Toronto. It is intended to exhibit all of the most up-to-date laboratory appliances, as well as a great many smaller "wrinkles" which are original with some of the Ontario profession. The laboratory will be planned and arranged with a view to maximum convenience and utility, with minimum confusion and dirt. Among many other features will be a complete compressed air outfit. Also a demonstration of the many ways in which electricity may be used in laboratory operations. There will also be in active operation a system by which all odors and dust from the lathe are carried away. This model laboratory will alone more than repay you for your visit. Don't miss it.

BRITISH COLUMBIA DENTAL ASSOCIATION.

The annual meeting of the British Columbia Dental Association was held at Vancouver, on October 3rd. The interest of the profession in the affairs of the association has been very slight for some time past, and a strong effort was made on this occasion to awaken the members to a sense of their responsibility. It is most satisfactory to think that the meeting was a pronounced success, being very representative of the province as a whole.

Dr. K. C. McDonald, of Grand Forks, was elected president, and Dr. R. F. Verrinder, of Victoria, secretary-treasurer.

The terms of two members of the Examining Board having expired others were elected to fill the vacancies, subject to the endorsement of the Lieut.-Governor-in-Council. Much routine business was transacted and arrangements for the next meeting were taken into consideration. It is hoped when the association meets again that such important subjects as qualification for Dominion registration, and the question of provincial representa-

tion at the meeting of the Canadian Dental Association will be considered.

Vancouver being the most central point the next meeting will take place there.

I also have to report a special meeting of the Association at the Hotel Vancouver, Vancouver, B.C., on February 4th, 1905, at which the Vice-President, Dr. C. A. Jackson, occupied the chair, and Dr. R. Ford Verrinder, acted as Secretary. At this meeting the names of Drs. Verrinder, of Victoria, and Smith, of New Westminster, were nominated to fill the vacancy on the Board of Dental Examiners caused by the resignation of Dr. Richard Nash. From the two doctors nominated the Lieutenant-Governor-in-Council will select one to fill the vacancy.

The question of affiliation with the other provinces of the Dominion, in the agreement for interprovincial registration, was, after considerable discussion, deferred for definite action until the annual convention. In regard to the above I may say it was my earnest endeavor to have British Columbia enter into the full agreement, but I found quite a number adverse to admitting the non-graduates.

The appointment of Drs. R. Ford Verrinder, K. C. Macdonald and R. Nash to represent the British Columbia Dental Association on the General Committee of the Lewis and Clark Dental Congress, to be held at Portland, Oregon, July 17th, 18th, 19th and 20th, 1905, was confirmed, as was also the appointment of Dr. A. J. Holmes to the Committee on Clinics.

At the evening session, Dr. Arthur W. Chance, of Portland, Oregon, secretary of the General Committee of the Lewis and Clark Dental Congress, addressed the meeting. Dr. Chance explained, in an enthusiastic manner, the many and profitable pleasures in store for those who attend the congress. All the manufacturers of dental goods will have large exhibits, as well as demonstrations by specialists in each particular line, besides which there will be essays and professional clinics by many of the most famous dentists from the East and Europe. As the different state and local societies of California, Oregon, Washington, Idaho, Utah, Montana, Nevada and British Columbia will not hold their regular annual sessions, but all join together at Portland, it is anticipated that there will be at least one thousand dentists in attendance from the territory west of the Rocky Mountains, besides the augmentation in considerable numbers from the east and foreign countries.

The meeting adjourned after extending a cordial vote of thanks to Dr. Chance, to the management of the Hotel Vancouver, and to the press, for courtesies to the association.

As you will see, as per supra, there will shortly be a considerable change in the personnel of the Board of Examiners for British Columbia, as at the October meeting Drs. T. J. Jones, and A.

J. Holmes retired, and at the last meeting Dr. Richard Nash resigned. As soon as the council appoints the three to fill the vacancies I will notify you, so that you can make the necessary changes in your directory of official association officers.

R. FORD VERRINDER, *Secretary-Treasurer.*

CANADIAN DENTAL ASSOCIATION — FINANCIAL STATEMENT, 1904.

RECEIPTS.

From fees	\$576 00
From orders for badges	1 75
From Exhibits Committee	145 00
	————— \$722 75

EXPENDITURES.

King Edward Hotel, entertainment of speakers	\$54 20
Travelling expenses of speakers.....	91 00
Badges	35 48
Postage	34 53
Printing and stationery	65 55
Committee on Army Dental Corps expenses ..	58 45
Committee on Clinics, expenses	28 38
Committee on Exhibits, expenses	80 48
	————— \$448 07

Balance, cash on hand \$274 68
Audited and found correct.

E. C. ABBOTT,
G. G. HUME.

Toronto, Nov. 8th, 1904.

Auditors.

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The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and so far as possible keep a corrected list, which will be of great value to the organizations.

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.

3 COLLEGE STREET

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VOL. XVII.

TORONTO, FEBRUARY, 1905.

No. 2.

TORONTO DENTISTS AT DINNER.

The Toronto Dental Society took dinner at Webb's at 6 p.m., February 7th. The speaker of the evening, Rev. Joseph J. McCann, V.G., delivered an address on geology and its relation to revelation. No greater treat was every enjoyed by the Toronto Dentists. The vicar-general is a model in direct clear exposition of a subject. His appearance is one of dignity and culture; his language that of a master. His word pictures of the education of the Egyptians, the Greeks, and the Romans were eloquent. His manner is simple and his logic sound. Not for one moment did he allow any thought other than the one under discussion to enter the listener's mind. As a teacher the vicar-general has few peers.

Dr. Sparrow added to the evening's entertainment by singing two songs which pleased every one. The dental profession

are indebted to Dr. Sparrow for his assistance on this and many other occasions.

A vote of thanks, moved by Dr. Willmott and seconded by Dr. Thornton, was tendered to the Rev. Mr. McCann for his eloquent and highly instructive address.

The society might well hold another meeting of similar character.

Editorial Notes

DENTISTRY in Toronto has recently had reason to blush.

THE death of Dr. Henry T. Wood, of Cobourg, has just been reported.

ANOTHER provincial parliament in Ontario without a dentist, and three physicians in the Cabinet.

THE Ontario Dental Society meets in the College building, Toronto, March 13th, 14th and 15th, 1905.

No dentist in good standing in Ontario can afford to miss the annual meeting to be held, March 13th, 14th, and 15th, 1905.

DR. WILLIAM MCLEOD HARVEY, of Orillia, has been appointed sheriff of Simcoe County to succeed the late Charles Drury.

THE Manitoba legislature is amending its Dental Act so that the Dental Council may become a part of the new Canadian Dental Council.

A LARGE delegation of Montreal dentists are expected at the annual meeting of the Ontario Dental Society, March 13th, 14th, and 15th, 1905.

WILL someone explain why dentists usually extract the teeth of patients having cleft palates. If there is any reason for retaining the natural teeth for anyone it is for these unfortunate people. They are needed especially to retain an obturator.

THERE are authorities who hold most tenaciously to the belief (because it is only a belief) that pyorrhea is always caused by syphilis.

ONE Mr. Bell, of Toronto, recently added \$20 to the exchequer of the Royal College of Dental Surgeons of Ontario for practising without a license.

WE wish to thank Dr. G. Lennox Curtis, of New York for an invitation to the Canadian Camp dinner, to be held at the Hotel Astor, New York, March 2nd, 1905. Dr. Curtis is the president of the camp.

THAT genial and eloquent member of the Faculty of the R.C.D.S., Dr. A. W. Thornton, of Chatham, has just completed his course in crown and bridge work to the students of the College in Toronto. He took a few days intermission about the 25th of January to help to disfigure the Liberal Party, and when he returned with a characteristic smile over the general result there seemed to be a cloud. But we are creditably informd that there is going to be an opportunity to clear it away. West Kent may be open again, and in such an event we hope to have the opportunity of seeing Dr. Thornton the Conservative candidate. There is little doubt but that he will be elected if he will only consent to be the candidate. It is a crying shame that there is not a dentist in the Ontario Legislature.

Correspondence**FALSE.***To the Editor of DOMINION DENTAL JOURNAL:*

DEAR SIR,—Certain members of the Board of the "Royal College of Dental Surgeons," also ex-lecturers of said College, and members of the "Toronto Dental Society," have been reporting that I was interested, had money in it, or backing the "Toronto Painless Dental Parlors" on Yonge Street. When I spoke to some of them about it they acknowledged speaking of it, but their minds were a blank as to where they heard it. The report they have been circulating is false, as I have not now, nor never had one cent interested in it, directly or indirectly, in any shape or form whatever.

M. B. MALLORY, D.D.S.

Toronto, February 14th, 1905.

MY DEAR DR. FRAWLEY.—Mrs. Wood and I wish you to convey our most heartfelt thanks to those brother dentists who so kindly helped to make up the purse of gold presented to us by you in their behalf on the occasion of our golden wedding. We also wish to thank you personally for the kindly interest and trouble taken for us at that time, in giving us one of the most pleasant surprises of our lives. The dentists of Toronto will always be remembered by us for their kindly and generous remembrance on the fiftieth anniversary of our wedding day. Wishing the profession all success and prosperity,

I am, yours gratefully,

Cobourg, Oct. 19th, 1904.

HENRY T. WOOD.

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Original Communications

THE PHENOMENA OF SUSCEPTIBILITY AND IMMUNITY IN DENTAL CARIES AS THEY AFFECT US IN OPERATIVE DENTISTRY.

By C. N. JOHNSON, L.D.S., D.D.S., CHICAGO, ILL.

Read before the Ontario Dental Society March, 1905.

In the attempt on the part of the profession to save the natural teeth from the ravages of decay, certain phenomena have been encountered which to those who make accurate clinical observations are very significant, and which merit the closest study and the deepest insight, as affecting one of the most important problems presented for our solution.

As far back as men have studied dental caries, the fact has been apparent that there is a great difference among individuals as to their liability to be attacked by this disease. Some people are practically free from it, while others are so susceptible that, unless the very greatest care is given the teeth, they quickly break down under its influence and are lost. To account for this difference the profession quite naturally fell into the idea that there was a difference in the structure of the teeth, and that in the one case the teeth were sufficiently hard to resist the agent of decay, while in the other they were so soft that the agent could readily act upon them. This impression quickly gained ground among the laity, and became so firmly implanted that it seems almost hopeless to try to eradicate it.

Then, again, another phenomenon presented itself, to the effect that there was a difference in the tendency to decay at different times in the same individual, and this, in line with the idea of hard and soft teeth, naturally led to the theory that the teeth changed in density and became at times hard and at times soft, the supposition being that during the period in which the carious process was active the teeth were soft, and when

the decay ceased the teeth had become hard. We frequently hear patients make the remark: "My teeth are much harder than they were, and consequently I have less trouble with them."

This theory of "hard" and "soft" teeth—while we shall try to prove that it has little to do with the inception or prevention of caries—has, after all, in the minds of the profession, a very plausible and natural basis of conviction. That there is a great difference in the structure of teeth would seem to be apparent from the only means of observation employed by the vast majority of the profession, viz., through clinical experience. It is undeniable that in operating in the mouth there is the greatest difference imaginable in the behavior of teeth under cutting instruments. A chisel will readily cleave the enamel from some teeth almost without effort, giving the impression of a chalkiness which suggests softness to the operator, while in other teeth it is exceedingly difficult to make any impression whatever with the sharpest instrument. Viewed in this light there is the greatest possible difference between the relative hardness and softness of the enamel of different teeth.

And yet these same teeth, when subjected to chemical analysis, will show an astonishing uniformity in the constituents of which they are composed. In fact, from the earliest investigations into the composition of the human teeth by various scientists, there has been a general similarity of results when the percentage of organic and inorganic materials has been computed. Dr. G. V. Black, in his study of the physical characters of the teeth, made it an especial point to secure teeth from all classes of individuals, from the young, the aged, the robust, and the delicate, and yet there was almost no variation in the chemical composition of the teeth of the different classes. It may also be said, in passing, that what little variation there was seemed to have no relation whatever to the tendency to caries in the various mouths.

The question quite naturally arises, If there is so great a similarity in the chemical composition of human teeth, why is it that we find such a striking difference in the behavior of teeth under instruments? It will be found that this difference is confined for the most part to the enamel, and is largely due to the arrangement of the enamel prisms. If in the development of the tooth the enamel rods are laid straight and parallel, radiating outward in regular order from the dentine with no interlacing, then we may look for enamel which will cleave readily under the chisel. If, on the other hand, the arrangement of the rods is such that they are wavy and interlaced, then we may expect enamel which will stoutly resist the action of cutting instruments. It is the physical difference between straight-grained maple and bird's-eye maple—the one will split easily, while the other will cling together to the last extremity.

And yet in these two specimens of enamel there seems to

be little difference in the liability to the inception of dental caries. Please note the expression, "liability to inception." It is not claimed that when once decay begins in the teeth it will progress as rapidly in the wavy enamel as it will in the straight-grained enamel, but the idea is that so far as we can judge from statistical facts and clinical experience, decay is not any more liable to attack one kind of enamel than another.

This may appear like an astounding statement to those who have become habituated to the idea of a close relation between "hard" and "soft" teeth and the carious process, and yet all that is asked of each member of the profession is a close observation of this question in the mouths of patients.

A most striking example illustrative of this point came under the notice of the writer since the invitation was accepted to present this paper before you.¹ A young man of about eighteen applied for examination of his teeth. I had seen his teeth at intervals of one or two years since he was a child, but had been called upon to do very little for them. Although he took only the ordinary care which a boy of that age usually gives his teeth, the only cavities appearing up to this time were a few small pit cavities in the occlusal surfaces of his molars, due to developmental defects. In short, the tendency to decay in his mouth was very slight, and under the usual impression in the profession his teeth should consequently have been hard. But they were not. They looked chalklike in character, and always had since I first saw them. At this last examination I found a cavity in the proximal surface of a bicuspid. On opening it up to the occlusal surface I found that the enamel broke down with astonishing ease. It flaked away under the chisel almost like soft limestone, and wherever the chisel was used to trim it the enamel margin was left white and pulverized. In fact it presented somewhat of a dilemma to establish a suitable margin against which to build a filling, and I finally concluded that the best service in that particular case would be attained by the use of a gold inlay instead of a foil filling. Here was a patient who, in the generally accepted sense, had the very softest kind of teeth, and yet he had passed through the period of greatest liability to decay almost free from it.

Speaking of the periodicity of caries, recalls the fact previously alluded to, that there is a variation in the tendency to decay at different times in the same mouth, and that the impression prevails in the profession that there is correspondingly a relative change in the structure of the teeth to account for it. The fallacy of this idea must be apparent to the most superficial observer if he only stops for a moment to consider it. The very character of the teeth is such as to argue strongly against such a theory. The teeth are not being continually built up and torn down as are other tissues of the body. They are not changeable, but are the most stationary of all human structures.

A tooth once formed in the jaw of a child is to all intents and purposes a finished product so far as that particular tooth is concerned, with the slight exception of the very gradual though almost imperceptible hardening as age advances, through a diminution of the organic and a relative increase in the inorganic constituents.

This, of course, does not imply that all teeth are equally well developed. We frequently find definite and positive structural defects due to interrupted nutrition through the disturbances of the functions during the period of development. This may be brought about by a serious illness of the child at the time the enamel is being formed, and the effects of this illness are as plainly marked upon the enamel as if it had been dissolved with an acid. Then, again, there are very many teeth in which deep pits or fissures are left in the development, even where there has been no illness, particularly in the occlusal surfaces of molars and bicuspids, and the lingual surfaces of upper incisors. These are found in the depressions of the surfaces where the islands of calcification have failed to perfectly unite, leaving a developmental defect. These are structural faults pure and simple, and have nothing to do with the general character of the enamel in each given case. It is true that we frequently find decay beginning in these pits or fissures, but it is also true that in many mouths decay does not begin even in these defective places. And the most significant fact of all is that we so frequently find decay beginning in surfaces of the teeth where the enamel is free from structural defects, and is as perfectly formed as it is possible for nature to form it.

If decay of the teeth were a question of the tooth structure, we would look for cavities only in places where the enamel was imperfect, and would expect immunity wherever the enamel was well formed; but experience has taught us to scrutinize carefully certain surfaces—the proximal surface, for example—where the enamel is good, but where cavities so frequently form.

If it is true then that the structure of the tooth has little to do with the inception of caries we must look to something else as the governing factor in the case. We, as a profession, must know why it is that the manifestations of this disease are so different in different mouths; we must learn something of the true philosophy of the disease, so that we can the more successfully combat it. And it is confidently believed that if we study carefully the phenomena presented in our clinical experience we shall find that it is a matter more of environment than of tooth structure; in other words, that it is the conditions which surround the teeth, rather than the nature of the teeth themselves, which control the disease we are discussing.

On this basis it is not difficult to conceive that there is sufficient difference in the fluids of the mouth of different individuals to account for the varying manifestations of suscepti-

bility and immunity which present themselves in practice. We know that with other diseases there are the greatest variations of susceptibility among individuals; indeed, if this were not true we should have in our midst some very appalling epidemics. A car full of people may be exposed to the infection of smallpox, and yet only one or two possibly may contract it, and so it is with other infectious diseases. The medical profession has learned a great deal about the phenomena of these diseases, even to the extent of vaccinating against them, and yet there is one thing they have not learned, in which respect they are precisely in the same dilemma that the dental profession is regarding caries. No medical man can make an examination of this carload of people and tell which ones are susceptible to smallpox and which are immune. He may form an opinion on the basis of vaccination, and he may logically reason that those who have recently been successfully vaccinated are to a certain degree immune, and yet without the knowledge of vaccination he could not take the fluids of the body and by the most careful examination state definitely which individuals presented the elements of susceptibility and which immunity.

The fact is that the juices of the body are made up of many intricate compounds of which we are yet more or less ignorant, and until we become familiar with the characteristics of these juices we cannot hope to fathom their full bearing on the question of susceptibility and immunity. In the March number of the *Dental Review*, 1894, just eleven years ago this month, in an editorial on "The Prevention of Caries," I wrote among other things as follows:

"We believe, then, that the problem of preventing dental caries must be worked out along other lines, and we have a suggestion to make as to what these lines shall be. It would seem patent, in view of the foregoing, that if we are to accomplish anything permanent in this direction, we must so change the conditions of the mouth that the micro-organism of dental decay cannot exist therein. To attempt this may seem utopian, and we are not unmindful of the difficulty of the problem, but we are convinced that this is the only certain way out of the dilemma.

"When we speak of changing the conditions, we refer to something deeper and more subtle than a mere chemical reaction. There are agencies at work affecting the life forces of the human economy, the nature of which we to-day know comparatively little. We may recognize an idiosyncrasy, but we are not capable of defining the causes which lead up to it. For instance, there are individuals in whose mouths caries is seldom or never seen, while there are others with teeth as well developed, and where even greater care is taken, who lose their teeth bit by bit despite the most persistent effort to save them. The logical conclusion seems to be that in the one case there is a

subtle condition present in the mouth which militates against the active agency of the micro-organism, while in the other the conditions are favorable to its development.

"At the present time we are wholly unable to distinguish between these two conditions—we can see only the results. But the time will come—and we trust it will—when we are able to recognize these conditions and treat the patient accordingly. The idea of vaccination for the prevention of dental caries would offer a most delightful topic for the newspaper humorist of to-day, and yet who knows what the future may develop. One thing seems certain, we must learn more than we now know regarding the conditions that are favorable or otherwise to the propagation of the micro-organism of caries, and we must also learn how to modify these conditions before we can hope to successfully prevent decay of the teeth."

While we are morally certain that the chief factor in dental caries is something connected with the fluids of the mouth, yet we cannot by an examination of these fluids determine in advance whether or not the teeth in a certain mouth are likely to decay. It is true that in recent years, Michaels, of Paris, France, has been studying the saliva, with the end in view of determining the particular elements in the saliva which may be considered pathognomonic of certain diseases, and we hope that in the future something may be accomplished along this line. At present all we have to go by are the clinical manifestations as we observe them in practice, though these are very significant to one who has studied the matter from the proper point of view.

Just as soon as we reconstruct our preconceived ideas regarding the relation of "hard" and "soft" teeth to dental caries, and recognize the fact that it is a matter more of environment than of tooth structure, just so soon do we begin to realize a new significance and a new possibility in the practice of dentistry. So long as we believed the question to be one of tooth structure we were completely helpless in the attempt to control the difficulty, further than merely to fill the decayed teeth as fast as they developed. We could not change the tendency to tooth decay, because we could not change the tooth structure, but when it becomes a question of the conditions surrounding the teeth, we are placed in a more intelligent and a more hopeful relation to the matter, because we find that it is possible to change the conditions. And it is to this phase of the question that I particularly wish to invite your attention.

In studying the clinical manifestations of susceptibility in the mouth we find, as has been said, that there are certain periods of life when the teeth are more subject to decay than at others. The period of youth may be considered the one in which there is the greatest liability to decay, and it has been stated by a careful observer that if we can successfully preserve the teeth

up to the twenty-fifth year we have then carried the case to a point where the danger of losing them through decay is quite materially lessened. It is true that in many instances where a condition of apparent immunity has been established, some change in the environment may occur to make the mouth once more susceptible. For instance, a serious illness may be followed by a general breaking out of caries, and in this connection I wish to point out a fact which to my mind is very significant. It was, of course, formerly thought that the illness resulted in a deterioration of the tooth tissue, which accounted for the renewed attack of caries at this time; but, aside from the fact, as already stated, and which we now believe to be true, that the teeth are not sufficiently changeable in structure to bear out this theory, there is another manifestation connected with the question worthy of the closest consideration.

I have studied this matter somewhat carefully among my own patients in recent years, and I find that there is an ever-lessening tendency toward post-illness caries as time goes on. Why is this? If it were true that the tooth tissue had anything to do with it we should find the same outbreaks as formerly, because people are surely taken as seriously ill to-day as ever, and they have their vitality lowered fully as much and still recover. Why, then, is it that their teeth do not decay so readily? I am convinced that it is due to the fact that physicians and trained nurses recognize the necessity for oral hygiene more and more, and during an illness the nurse is instructed to brush the teeth carefully and keep the mouth clean. It is rapidly being realized in the medical profession that the mouth forms one of the best culture fields for micro-organisms, and that through this medium many pathogenic bacteria may gain entrance to the body. The attempt to keep the oral cavity clean prevents the development of such conditions as render the mouth susceptible, and the teeth of our patients do not suffer so much after an illness. And so we again come back to the question of environment as being the chief factor in dental caries.

And, parenthetically, I may say at this point that it is not solely a matter of mere cleanliness. It is true that if we could always keep the surfaces of the teeth perfectly clean we could thereby prevent caries, but in the mouth this is quite impossible. Cleanliness is to be very highly commended, but there is something above and beyond this which largely dictates the issue. It is the idiosyncrasy in each mouth which governs. If this were not true why should we find so many instances where no attention whatever is given to the teeth, and yet decay is almost entirely absent, while in other mouths where the greatest care is taken the teeth constantly demand the attention of the dentist? Of course, in the latter instance it is undeniably certain that if the teeth were neglected they would rapidly go to

destruction. In other words, we may find in two mouths teeth practically the same in structure, but which show, with equal care, or equal neglect, the greatest difference imaginable in their liability to decay. So there must be something aside from cleanliness which enters into the case.

Speaking of the periods during which decay may be looked for, we frequently find an activity of the carious process in old age. Teeth that have lasted for a lifetime sometimes melt away in an astonishing manner as the patient begins to show signs of decrepitude. This form of decay, however, is in many cases peculiar to itself, and seems to be the result of a recession of the gums, leaving the teeth exposed beyond the gingival line. Without the protection of the enamel the teeth soon become girdled by decay until they are in some instances almost cut off at this point.

Then, again, a change of climate sometimes seems to induce a condition of susceptibility. People coming to this continent from Europe often experience trouble with their teeth, where before they had been practically free from it. There are many of these manifestations which require more careful study on our part, and it remains for some earnest investigator to search out the particular elements in the fluids of the mouth which act as the governing factor in controlling the tendency to dental caries.

The most that we can do now with our present knowledge is to observe the clinical manifestations in the mouths of our patients, and direct our practice along the lines indicated by such observation. And I may say in this connection that while, as just intimated, the fluids of the mouth may be more or less a hidden volume to us, we have a very vivid index to some of the conditions of susceptibility before us in our every-day practice. The mouth in which caries is progressing rapidly has something distinctive in its appearance, something which is exceedingly difficult to describe, but which is readily recognizable by one who has studied this matter carefully. I can only give in the most crude and imperfect manner a few suggestions for observation on the part of those who care to make this kind of study a feature of their future work, and I can confidently recommend such study as being the basis of the most intelligent and successful management of what in the past has proved a discouraging and even a desperate class of cases.

In the most typical case of all, that of a child from six to sixteen years of age, we find some of the following manifestations present when the carious process is active: Teeth generally coated with a glutinous material which seems difficult to brush off, saliva thick and ropy, foreign matter clinging readily to the surfaces of the enamel, gums somewhat highly colored, with the festoons enlarged and spongy. The mouth has an unkempt appearance as if entirely neglected by the patient. If food

particles are lodged between the teeth, and the patient is given a glass of water to rinse the mouth, there seems to be but little effect from the rinsing, the accretions still clinging to the teeth as before. In using pumice or other insoluble powder for cleaning the teeth, the powder will adhere to the gums and the interstices about the teeth, and cannot be readily rinsed away. In short, the secretions of the mouth seem unduly thick and viscid.

With a mouth in this condition the dentist usually has a case of susceptibility to dental caries before him, and the problem is presented of changing this condition to one of immunity. This latter statement implies that it is within the province of the practitioner to render a susceptible mouth immune, and in reasonable limits this is true. We find in the history of most cases, if anything like ordinary care is given the teeth in the way of hygiene and dental service that the tendency to decay rapidly diminishes at from about the sixteenth to the twentieth year, though, of course, if a case is neglected entirely it is quite likely to go on progressively from bad to worse till all the teeth are lost. The function of the dentist lies in bringing about in the mouth of his patient a cessation of the carious process earlier by several years than would occur in the usual course of events. In fact, the dentist should work with this end in view in all young patients, not with the mere idea of filling cavities in teeth, but with the object of so changing the conditions of the mouth that the environment will be less favorable for the advance of caries.

The question arises as to how this may be accomplished. At the outset it should be stated that there is nothing miraculous or medicinal about the treatment, but merely an institution of such hygienic and preventive measures as every dentist has at his command. The first thing to do with such a mouth as this is to clean it thoroughly. Stir up the stagnant conditions as they never were stirred before. Let the gums bleed freely if they will during the cleaning. Syringe the mouth vigorously with a tepid antiseptic solution, and keep up this process till you have changed the reaction in the mouth for that one time at least. Then impress upon the patient the necessity for the most scrupulous attention to the teeth and gums, and explain the physiology of so caring for the mouth as to bring about a change in the conditions surrounding the teeth. Patients are quick to catch such points as these if we take the pains to instruct them.

Then institute an active campaign against decay in the mouth. Keep down the cavities, no matter how often you have to see the patient. Fight decay as you would a deadly enemy, and arrange to examine the teeth every two months if necessary. Neglected cavities encourage the formation of new cavities, and the prompt suppression of cavities tends to limit the liability to decay. If this kind of effort is put forth it will not

be long before the results will begin to develop, and a case which, at the outset, seemed discouraging will prove amenable to successful treatment. The fluids of the mouth will clear up and become thinner, and the mouth can readily be rinsed free from debris.

This is the one supreme lesson of the study of susceptibility and immunity in its practical application to our every-day work, that no matter how bad a case of dental caries we have presented for our consideration, no matter how discouraging the outlook may be for the ultimate saving of the teeth, we can have the assurance that if we institute the proper plan of treatment we shall surely sooner or later bring about such a condition that in the natural order of things the teeth may be saved and made serviceable for life, so far, at least, as dental caries is concerned.

And my final plea is that you take this subject home with you and study it in the mouths of your patients—study it from the point of view so imperfectly outlined in the present paper—with the firm conviction, in my own mind from my own experience, that you will be doing infinitely greater good to humanity than is ever possible by hedging behind the all too prevalent fallacy that the teeth of many unfortunate individuals are so soft that they can never be saved by filling. Most teeth can be saved, and they will be saved if we do our duty.

DISCUSSION.

By O. I. CUNNINGHAM.

It is a pleasure to have the privilege of assisting in opening the discussion on Dr. Johnson's paper. I was very much interested in the paper. I do not think it calls for as much discussion as it does for emphasis.

When the Secretary asked me to assist in opening the discussion on this paper, he requested that I should discuss it from the standpoint of the young practitioner; consequently, there are several features in the paper that, while I do not take exception to, I am not willing to confirm.

The essayist said that the impression that there was a difference in the structure of the teeth, so that in the one case the teeth were sufficiently hard to resist the agent of decay, while in the other they were so soft as to be readily acted upon; that this impression is so firmly implanted in the laity that it seems almost hopeless to try to eradicate it.

Now, gentlemen, I think, with the young practitioner of to-day, that idea, so far as it being the principal factor of susceptibility or immunity to caries, is entirely eradicated.

I am very glad that the essayist has centred his views on one point, viz., that susceptibility or immunity is due, not to tooth structure so much as to environment, and that the prin-

cipal factor must be looked for in the fluids of the mouth. I have no doubt but that investigations along these lines will be fruitful in establishing a clearer conception, if it does not determine accurately the causes of susceptibility or immunity of the teeth as regards caries.

The essayist speaks advisedly in regard to post-illness caries, and I am confident that we will save more teeth for our patients when we recognize the fact that cleanliness, while it may not be the principal factor in caries, is, nevertheless, a most important one.

Dr. Johnson referred to the function of the dentist as being more in changing the conditions of the mouth, so that the environment would be less favorable for the advance of caries, rather than with the mere idea of filling cavities. This, to my mind, should be, to the young man, one of the ideals he should strive to reach. At once the question of compensation arises, and my thought along that line is, that when we have demonstrated to our patients that by precautionary measures we can prevent caries, just so soon will our services not only be more appreciated, but more compensative.

I take exception to the Doctor's meaning when he says that all teeth have relatively the same chemical composition, and that what little variation there is seems to have no relation whatever to the tendency to caries in the various mouths.

Now, there has been no experimental proof of the truth of this theory to put it beyond doubt. According to Miller, "it is not solely a question of the percentage of calcium salts in a tooth, but of the stability of the compound formed by those salts with the organic matrix of the tooth. It is quite conceivable that two teeth may contain exactly the same percentage of calcium salts and still possess different degrees of chemical stability." Unfortunately, our knowledge of the nature of the combinations occurring in teeth and bone is very incomplete. It is a very common thing to find one tooth decayed to the pulp, while the approximating surface shows no sign of caries. This phenomenon is difficult to account for, unless we suppose that the teeth have different resisting powers.

While the environment theory opens up an alluring field for investigation, we must not lose sight of the fact that many eminent investigators are proceeding along other lines. Miller says that his investigations have led him to the conclusion that there is no one all-predominating factor which accounts for susceptibility or immunity to caries, but a large number of factors, part of which are to be sought in the teeth themselves and part in their surroundings.

As much as I would like to elaborate, I must be brief. The essayist has given the convention a paper in which his views are clear and readily understandable; views which are as ad-

vanced, and which I hope may be not only as correct, but prove to be that which we are looking for, viz., the predominating factor which accounts for immunity or susceptibility to caries.

DR. SPARKES.—Gentlemen, the paper is open now for general discussion, and we shall be glad to hear from any of the members who have anything to say upon the subject which has been so ably presented to us.

DR. MARTIN.—Mr. President, I have very much enjoyed the paper. I always enjoy Dr. Johnson's productions. I think perhaps the dentists are responsible for the ideas that the laity have concerning the hardness and softness of teeth in different mouths. I think we are very apt to hide behind the excuse when fillings fail; we are very glad to have some such excuse. If it does not already exist in the mind of the patient or the patient's husband, who has to pay the bill, we perhaps are sometimes under strong temptation to place the idea there that these teeth are too soft to retain the filling. Dr. Johnson spoke of the great difference in teeth under the instrument. I would like to ask him if, in his opinion, there is a marked difference in the behaviour of teeth under fillings, and if that difference is to any very great extent due to the manner in which the fillings have been inserted, or if it is more due to the environment in which those teeth and fillings are placed?

DR. SPARKES.—We will proceed with the discussion, and at the close Dr. Johnson will probably answer for all at once.

DR. CLARK.—I should like to add a word to what Dr. Martin has already said, to express my pleasure in listening to a paper from Dr. Johnson. It is some years since we have had that pleasure here, and I can only say that to listen to a paper from him seems to fairly nourish one, and none the less so this time. There are two or three points I jotted down as the paper was read, some of them in the way of questions. He spoke about the enamel of some teeth, where the rods were straight in some and others curly, those that were curly being stronger. We know that enamel belongs to the same class of tissues as the finger nails, hair, and so on. I would like to ask him if he has ever observed any relation between this enamel with straight rods and straight hair, or enamel with curly rods and curly hair? (Laughter.) We know that the colored gentlemen seemed to have very good teeth. I don't know whether the rods of their enamel are curly as the wool or hair is. The next point I jotted down here is simply a case that came before me. A young man came to me once and had me look over his teeth. I think I removed a root and put in two very small fillings. I complimented him upon having a most excellent set of teeth. He came to me some eight months after and said he felt he must have some tartar on his teeth, as he could get his finger-nails underneath it. I examined across the front of his teeth, the incisors, principally the superior, on both upper and lower

teeth, and I found them almost girdled with caries at the gum margin. I was amazed. I was horrified. It was, indeed, a very difficult piece of work for me. I asked him if he had been sick. No, he said, never better in his life. I asked him if he had been taking any medicine of any kind. No, he said. "Well," I said, "there has been something going on unusual." "Well," he said, "I gave up smoking at that time. Would that be it?" I said no, I didn't think it would. Just while I was in the middle of my dilemma, he said, "When I took a notion for the pipe I kept a lot of these," and pulled out a lot of little candies or acid drops, "and I usually have one of these in my mouth, and when I go to bed I usually put two or three in my mouth." I said, "Do you sleep on the left side?" He says, "I always do." There was almost nothing wrong with the teeth on the right side, but the trouble appeared starting from the incisor teeth and going around to the left. I don't know whether there is anything significant in the paper on that case. Dr. Johnson also spoke of aged patients having decay that seemed to girdle the teeth and practically cut them off. I have one patient at present, an old gentleman over eighty, whose teeth I have cared for since I commenced practice. I removed the only three teeth that have ever been removed from his mouth, and yet they are all girdled. This old gentleman has a sort of throat trouble, and usually has some of these little candies in his mouth when he gets in the chair. They are for some bronchial affection. I would like to know the Doctor's experience, whether he has found those things are harmful.

DR. McLAUGHLIN.—Mr. President, I am sure most of us probably came into this room with the firm intention of not taking part in this discussion, but of just sitting and listening to what others have to say, but that is a sort of paper that makes most men think, and I felt, and I am sure many of us felt, that Dr. Johnson was just telling a story of many a fight that we have had with some of our patients during the past year, or past years, of our practice. I could not help but have before my mind, particularly, one of my patients while Dr. Johnson was reading the whole of his paper, and with that particular patient there has been a struggle going on, with the patient and dentist on one side and this fell disease on the other, and sometimes we think we are getting the better of it, and sometimes, especially, the patient feels very much discouraged. If one may go on to recite the case and not worry you, the patient's teeth were not altogether immune from caries until the patient was about thirty years of age, but there was no great difficulty, and then during her illness, before the birth of her first child, she neglected to come to the office. I did not see her until about a year afterwards, and then she came, and there was a complete change. We had no difficulty before, but that was about four years ago, and from that time to this the struggle that I

speak of has been going on. I did find the saliva somewhat acid. For the acid reaction at that time we used home treatment, and are to-day. I tested her mouth last week and found there was no acid reaction. There is some improvement, but not enough to give the patient very much encouragement, and so the struggle is going on. I felt, when Dr. Johnson was reading that paper, that that patient was before my eyes. There was one point in the Doctor's paper that worried me very much. I felt I was on the right track in local treatment, but if I gathered the proper impression from Dr. Johnson's paper, he did not give very much encouragement to constitutional treatment. I don't know whether that impression is correct or not. But, in referring to change of climate, we know that change of climate will tone up the constitution. That, to my mind, would tone up and better the fluids of the body, the mouth included. Dr. Johnson comes with the theory that often a change of climate acts in the other way; that a patient will come back from Europe, or a trip abroad, with the teeth worse than when he or she went away, so that I gather there is not very much encouragement from constitutional treatment. This patient I speak of spent last summer at the sea-side. She came back not very much changed. Her constitution was somewhat improved, and her nervous system toned up, but there is the difficulty. The fluids of the mouth, to my mind, have improved a great real, yet the improvement in the real matter of susceptibility to caries is not what we would like and what we looked for. I must thank Dr. Johnson for that matter because it has carried me along in that particular line.

DR. SECCOMBE.—Mr. President, I am sure I can follow the other gentlemen who have spoken in stating how pleased we are to have Dr. Johnson with us, and how much we have enjoyed his paper. Of course, it is a paper we will look for in print and at our leisure will study, but listening to the Doctor, it seems to me, while Dr. Johnson has set out, going to one extreme, we have been travelling in the other, perhaps, and perhaps we can strike a happy medium and can arrive at a very substantial basis. I do not agree with Dr. Cunningham that there is a feeling in the minds of patients that there is no difference in the structure of teeth. I have found personally that there is that in the minds of people, and in very many of the minds of practitioners, as well. I know in my own mind I have always felt that teeth decay sometimes because they are of soft structure. That is one extreme; but it seems to me Dr. Johnson has got to the other extreme, and perhaps he has overlooked somewhat the fact that teeth are part of the general anatomy, and it is almost impossible to separate them. I was talking to a man a short time ago who had been travelling abroad. He said that he had been in the city of Glasgow, and after leaving the city he had dubbed the city the "Bow-legged

City," because of the number of bow-legged people—men—that he saw while there. Just afterwards he was travelling in Ireland, and as he and his Irish friend were walking down the beach one day they saw a man approaching, and his friend said, "I will wager you that man comes from Glasgow," and my friend said, "How do you make that out?" He said, "Wait till you see when he comes up." When he came up, by a few questions they found he had come from Glasgow, and then his friend explained it was because he was so bow-legged. On looking at the matter my friend said it was because of the water not containing any lime salts, or at least it was attributed to the fact of the chemical composition of the water in Glasgow. (Laughter.) If that be true, surely there must be some difference in teeth. The teeth cannot be separated from the anatomy entirely, as Dr. Johnson would have you believe they might be. If that be so, what is the pulp for? After the tooth develops and there is no further change in the tooth, what is the pulp there for? According to evolution it would simply all disappear in a few years. It seems to me that the pulp has some office to perform, and it is natural to suppose that there is the circulation, and as it goes through the tooth, that there is some chemical change from time to time in the structure. Of course, in the main I think we must all agree with Dr. Johnson and thank him for directing our thought in the other direction, because his position is the more hopeful one, and one we can look forward to with pleasure, feeling our work is not an impossible proposition, as sometimes we are apt to think. There is a question I want to ask Dr. Johnson with regard to the ropy saliva. That point impressed me more than any other in Dr. Johnson's paper, the fact that usually teeth are susceptible where you find the condition of thick, ropy saliva present. I would like to ask Dr. Johnson whether the mere mechanical presence of this condition of the saliva on the teeth, causing food to accumulate, in his opinion has anything to do with it? And, of course, another question, following up Dr. Clark's, whether in that condition, where there is no enamel on the teeth at all, it has to do with bald-headedness? (Laughter.)

DR. ROBERTSON.—Mr. President and gentlemen, I think Dr. Johnson has had as many bouquets thrown at him this afternoon as he will desire, but I wish to throw one more. I always find when Dr. Johnson is down for a paper at our Association that I am always there. If it is a compliment to the worthy Doctor, I can assure you one of the drawing cards from the East was that Dr. Johnson was to read a paper before us, and I am sure I voice the feelings of all those here when I say that none of us have been disappointed. The food that is contained in that paper, as a gentleman here to my right has said, is so much that we cannot assimilate it just at present, but when we have an opportunity of reading it at our leisure in our homes,

we can then digest it thoroughly, and I am sure that the effort Dr. Johnson has put himself to will not be unappreciated. He has mentioned about different causes and so on, and cited cases where Europeans came to this country, and in the course of time the teeth went astray. He also cited cases of when Canadians and Americans—I am sure he included Americans, because we like to include them occasionally—went to Europe, the same thing would take place. I think myself that is simply environment, that is all. I know of a case distinctly, where a patient of mine who had an exceptionally perfect set of teeth, went out West, and in the course of three or four years returned to Ottawa, and I was simply horrified to find her teeth in such a state; they were simply so far gone that I do not think even Dr. Johnson would attempt to fix them. She attributed the defect to the composition of the water, the alkali, as the cause of her teeth going as they were. Of course, that is a question I wish Dr. Johnson to answer. There is another item. He mentioned the case of children from six to sixteen—we all agree that that is the vulnerable age for decay—he did not mention what he would do with those children. Would he fill with cement, or would he confine himself to gold fillings? He mentioned in one case where he put in a gold inlay. I presume he did not mean to not simply insert a filling, but in this case of a child from six to sixteen, to find out what he would fill those teeth with.

DR. WEBSTER.—Mr. President and gentlemen, without referring to the excellence of the paper, I would just like to discuss one or two points. One of the natural conclusions drawn from the paper would be that since the structure of the tooth is the same all through life, that we should insert whatever filling material we think the most perfect filling material at whatever age the patient applies. I presume he would say gold filling. The enamel is the same, he says, and he says the tooth is the same, which perhaps ought to be qualified to some extent. The enamel undoubtedly is the same through life, changing to some extent, as he admits; but the dentine certainly does change, and may change, and there seems to be no real histological reason why it should not change at various periods of life; and, as suggested by Dr. Seccombe, of what use is the pulp unless it serves some purpose after the full development of the tooth? We quite understand, histologically, that the enamel is developed from a different blastodermic layer to that of dentine, and the dentine being developed from the mesioblastic layer, would come under the same conditions and be affected by the same influences that would influence other structures developed from that layer, we might expect the dentine would change occasionally, and I presume it does. With reference to the filling question, while logically nothing but a gold filling should be inserted into the tooth of a young child, if it is good

at twenty-six it is good at six, yet there are many conditions in which a metallic filling should not be inserted even for a child of twelve, or fourteen, or fifteen, which I presume Dr. Johnson will discuss later. There is another point in the question of environment. He says there is no efficacy in cleanliness to prevent caries, or words to that effect. What does the essayist mean by cleanliness? Does he mean surgical cleanliness or just ordinary? Because later in his paper he says change the environment by thoroughly cleaning the teeth.

DR. PEARSON.—There is one thought I wish to mention before the society and have Dr. Johnson pass a few remarks upon it if he will. During his paper he mentioned that we have never been able to discover by any analyses of the fluids of the body, or any microscopic inspection of the parts or particles of the body, just what causes immunity or susceptibility. He said that if a person were vaccinated and the fluids of that body analysed that we could find therein no elements which would indicate to us that that patient was immune to smallpox. Now, if we argue along this line it may bring us to the conclusion that all the analysis that we wish to make of the teeth is not sufficiently minute to discover that it is entirely due or entirely not due to the chemical formation of the teeth which gives or supports munity or immunity. I just wish to ask Dr. Johnson in this case what are the positive proofs that have been developed so far to support the theory that he has given us. There is one other question which arises to my mind, and which he has not touched, and that is the question of erosion. Not long ago I had a patient who had always taken excellent care of his teeth. He had several gold fillings and a large number of amalgam fillings, and within the last year the enamel plate on the lingual surface of the superior teeth all dissolved away, leaving the gold fillings in the proximal surfaces of the centrals and the laterals quite exposed and quite prominent on those surfaces. There was no enamel left as far as I could find. I questioned him very carefully as to his general condition, and he said that he had had no illness except some trouble with his urine some little time previous—about a year previous to that. He had been to a physician regarding that, and as far as he knew there was no trouble there now. Another case, of a lady who was suffering from tubercular trouble. Two years ago I put in a number of fillings for her, some of them porcelain, some gold. At the present time the enamel on the lingual surfaces of those teeth had become so dissolved away without any apparent softening of the enamel or dentine, that those fillings failed. It has not been due to the fillings, I can vouch for that, because parts of the fillings were there, and some of the fillings were there standing prominently, with the enamel entirely dissolved away. I would like to ask Dr. Johnson if this comes

under the same heading with his paper, and if it is due to a susceptible or to a pathological cause which we can control?

DR. WATSON.—I would like to ask Dr. Johnson a question. It is this: A tooth will sometimes partly decay, maybe half way to the pulp, and then the decay stops. Under that we find a very hard dentine and in the pulp chamber we will find deposits of dentine. Hasn't the constitution something to do with that deposition of dentine? Hasn't it something to do, and a great deal to do, with the hardening of the dentine under the cavity? How do you account for that condition in the pulp chamber and in the cavity?

DR. ADAMS.—I would like to add my appreciation of Dr. Johnson's paper. It has always been a query to me whether the fluids immediately surrounding the enamel were the main factors in caries, or the fluids of the system. Just to cite a case. I have noticed, and I presume the rest of you have, in a great many cases, bakers, for example, who taste confectionery, that they are subject to a peculiar kind of caries, and the same with those in the fruit business. Then I have also noticed that with physicians there is a peculiar caries, without any erosion very often. I find it in a great many physicians' mouths, especially in the incisors and labial surfaces of the incisors, a complete erosion in some cases, almost a V-shaped cutting of the tooth. But the case I wanted to cite specially was that of a woman of about thirty-five years of age, of very cleanly habits, with a most perfect set of teeth, and there were only two cavities and two gold fillings which were put in some years ago. I did not see the woman for about a year. Then I found on the tips of every cusp of the bicuspids one and two, and on the molars four and five, points of deep decay. I filled every one of them. Six months afterwards there seemed to be a continuation of the erosion and decay; it began to girdle the necks of the teeth, till eventually all the enamel on those teeth was softened, and almost the whole crown decayed. In about a year I had to remove the full set of teeth. I do not think you could put it down to the mere fact of lack of cleanliness or the effect that the fluids had immediately around the enamel.

DR. J. B. WILLMOTT.—I certainly do not feel physically in very good condition to undertake a discussion of any kind, and yet it seems to me that my friend Dr. Johnson would feel disappointed if he was not subjected to some criticism, not necessarily severe and not necessarily very adverse. I do not know of anything that humiliates an individual who has taken a good deal of pains to write a paper and present it to an association of this kind, more than to have it drop flat and pass with the asking of a few questions, but without touching the spirit of the paper at all. I have been there and I know. I came to the conclusion once, when I read

a paper at Buffalo, that either I was a fool, or else the whole society were fools. I wasn't quite sure which. (Laughter.) On that occasion I had taken a great deal of pains to enunciate what I supposed would be looked upon as thorough heresy, and yet nobody called me to time.

In discussing this paper I think that there are two points of view that we have to keep in mind in reference to the construction of tooth tissue. All caries are not identical; I think there is no kind of doubt about that. All caries destroy teeth, and all destruction of tooth tissue may be looked upon in a sense as dental caries, and still the phenomenon of actual destruction does vary very considerably. We have exceptional cases, but the case Dr. Adams spoke of just now is certainly an exceedingly exceptional case. All practitioners who have had any very considerable experience find cases which do not come apparently under any general rules of pathology. In discussing this question, it seems to me we want to find some starting point. We must assume something is, from which we can reason to find an explanation for something else. As I understand Dr. Miller's teachings his conclusions are that caries ordinarily are unquestionably a germ disease, the germs not affecting the tissue, perhaps, in the same way that the bacillus of tuberculosis does or the bacillus of typhoid fever, but there is a general analogy that the development of caries is the result of the life history of a fungus. As I understand his teaching and the accepted theory, caries have as their origin the lodgment of either starchy matter or sugary matter on the surface of a tooth. This is acted upon in the case of starch and in the case of sugar, by ptyalin or the saliva and converted into glucose, which is a fermentable substance. Bread is not fermentable as bread, nor sugar as such, but the action of ptyalin of the saliva converts it into glucose, which is fermentable. In the presence of a fermentable substance we have a fungus which acts as an organized ferment and develops fermentation. If, in addition, we have quiescence, heat, and moisture, we have a fermentation developed. All fermentation, we are taught in these days, is simply the life-history of a fungus. How are caries developed from this fungus? We have a particle of sugar lodged in the crevasse of a tooth; it is converted into glucose, and undergoes fermentation by the fungus of lactic acid coming in contact with it. If it is undisturbed, it reproduces itself, and we have a single fungus reproduced into a whole family, and in contact with the surface of the tooth. The life-history of these organisms include a bi-product, and that bi-product, in the case of the lactic acid fungus, is also acid, and in its nascent state, being developed in actual contact with the surface of the tooth, it combines chemically with the calcium salts of the tooth, decomposes the calcium phosphate, and forms calcium lactæ, which

is soluble, and it washes away; and as that process is completed an infinitesimal portion of the tooth tissue is destroyed. In an effort of cleanliness, or in the act of mastication, that colony may be broken up at that stage and the process of destruction for the time being ceases, but it simply ceases until the process is reproduced again. We have another particle of starch or sugar lodging in that same part, and another colony of fungus developed, more bi-product combining with the tooth tissue, and so the process goes on until the tooth is destroyed.

The development of all germ diseases is simply a question of dose and resistance. I presume what holds good of typhoid fever or tuberculosis will hold good of the germs of tooth decay. If we have these germs developed, and the tooth is of a sufficiently resistant nature to resist the action of the bi-product of the fungus, then the tooth is not injured at all, and this process of growing a fungus, living out its life-history, and dying and reproducing itself, goes on interminably without injury to the tooth, assuming that the tooth has resistance sufficient to prevent it from being acted upon by the bi-product of the fungus. As I understand it, that is the explanation of some cases of immunity which we occasionally meet in practice. We have all the conditions which we would ordinarily suppose were extremely favorable to the development of caries—teeth irregularly arranged in the arch,lapping over each other; the patient makes no honest effort to keep them clean—there must have been lodgment and infection by the fungus, and there must have been continuous growth and development of this fungus in contact with the teeth, yet the teeth are not eroded to the slightest extent. All who have been in practice have seen illustrations of this particular condition, and yet no caries develop. How do you account for it? If all the teeth are alike, I don't know how you would account for it. If the teeth may differ in their resistance to chemical action, then I think we can account for it; and wherever we find that condition existing, of irregular arrangement and teeth overlapping and other facilities for the lodgment of particles of food that are converted into fermentable substances, and yet no caries develop, the only possible explanation in my mind is that these teeth are immune by virtue of their resistance. We have analogous cases. In a family where there are half a dozen people, one of them is attacked with typhoid fever. All the others have been exposed in precisely the same way; they have drunk the same quality of water, they have eaten of the same character of food, and yet one falls a victim to typhoid and all the others escape. Why? Because for some reason or another one was predisposed and the others were not. As I understand it, that is exactly why teeth in one mouth decay and in another mouth do not decay. Unfortunately for the human race a very large percentage of teeth

are predisposed to the development of caries beyond a doubt. Then it is simply a question of the developing agent, and if that is present in sufficient strength, then we are going to have this chemical solution of calcium salts and an excavation into the substance of the tooth. We fill a tooth, make a good mechanical operation—because it is a purely mechanical operation—we have left the contour of it perfect. For years, perhaps for half a dozen years, that filling has absolutely preserved the tooth. Then, without any apparent change in environment, with certainly no change in the habits of the patient, with equal care that had been given all these years, we find caries recurring around these fillings. Why? I don't know why. I don't know that anybody knows positively why, but I have a very strong suspicion that a change has taken place in the resistive power of the tooth.

I am quite satisfied that not only have we nutritive changes taking place in the dentine, but also in the enamel. I presume not many of us have any fixed ideas as to how the enamel is nourished. Suppose, as a mere speculation, we assumed to be possible that the enamel may receive nourishment from the fluids of the mouth in which it is immersed. It belongs to the skin tissues, and we know that it is quite possible to nourish an individual through the skin to a certain extent, and from the porous character of enamel is it not quite possible it may undergo nutrition just from its contact with the saliva? though in that presumption I should assume it was necessary we should have a normal tooth with a live pulp as the correlative of its possible nutrition from its immersion in the fluids of the mouth; but whether from them or directly from the pulp, I do not think there is any question at all that careful observation will lead us to the conclusion that both the enamel and dentine do undergo nutritive changes, and that the resisting power of that tooth may be increased or decreased by these changes. One of the conditions which tends to immunity, probably, is that from better nutrition and better assimilation the tooth tissue becomes more resistant; and whereas, up to a certain time there was a tendency to development of caries, from that time the tendency became less, or, in other words, the tooth became more resistant to the influences to which it was exposed in the mouth. If that theory is true, if there is any foundation for it at all, it strikes me that the field for dental investigation is as to a constitutional treatment which might lead possibly to a greater resistance on the part of the tooth to the agents which actually destroy the tooth tissue. I want Dr. Johnson to understand, then, that from my standpoint I do not quite accept the conclusions of the paper, that a tooth once formed is a completed tooth, and that it undergoes absolutely no change in its powers of resistance. Older members of the profession may recollect,

perhaps ten or twelve years ago, Dr. D. D. Smith, of Philadelphia, put forward the most extraordinary theory, in a paper that was read, I think, at the Pennsylvania State Society, that when a tooth has reached its maximum of density and development through its pulp, through the normal function of it, it is in the interests of the tooth that the pulp should be removed and destroyed; that it was liable, through the action of this organ of nutrition, to a retrograde nutrition, and a tooth that is at its maximum of resistance to-day might, by virtue of the presence of live pulp, a year from now have very much less resistance; and he seriously proposed, in the interests of the tooth itself, it would be good policy to destroy the pulp and remove it.

I think there is no foundation for Dr. Smith's supposition that there is a time in the history of a tooth when, if it lost its nutritive function altogether, it might be probably a better tooth than it would be if that function had been retained.

I am satisfied of the fact that these nutritive changes do take place, but I would hardly care to have a tooth of my own devitalized. (Laughter.) There are a good many things, for instance, that we accept as theory that we would not care to have practised on ourselves; for instance, Dr. William Osler would hardly like to be chloroformed four years hence, and, having passed the age of forty, he would hardly like to be superannuated to-day. So that we may accept some things in theory that we would not care to have worked out in practice; but, nevertheless, I do think that there is a stratum of foundation for Dr. Smith's theory and for his suggestion. Those of you who know anything of Dr. Smith's investigation and modern practice know he has changed his method of preserving a tooth; he now proposes to preserve it by friction with pumice stone and wooden sticks—prophylaxis.

One other question, apart from this question of the possibility of nutritive changes, is why teeth decay at all. That is, why a firm, good tooth decays? What is our practice of filling teeth based on, anyway? I don't think it has any substantial foundation on which to rest at all, unless we assume that there are defects of development which we are curing by filling.

Dr. Johnson was referring to these defects of development as being the primary causes of decay. I don't think he went quite far enough. (Makes drawing of tooth on board.) We are now looking on a lower molar. We have here our islands of calcification, and they are spread till they come to this point, and they spread all the way down so that we have a line of union of calcification all the way down. We have here two perfectly similar lines on these surfaces. We find a little cavity developing on the buccal surface of that tooth, by that relation to the morsal surface. Why does that cavity develop there? I do not have any doubt it was because there was the failure to coalesce. That line all the way down is weak. We look at

the tooth from the other aspect, and we have this time a union of the islands of calcification. Where does caries attack surface? Does it attack it at the top or down below here? Sometimes above, but the rule is it attacks it just below the centre, because there is a defect of coalescence at that point. If we had no active cause of caries that might exist during a life-time, but if we have that predisposition to development and then an exciting cause, we have caries developed. What do we do when we fill that tooth? Dr. Johnson cuts that out. We have cut out the defect of development, and if we have not done that we have done nothing towards preventing that decay from recurring occasionally. We have got two weak spots, and unless coalescence has been fairly good, we are going to have a recurrence of decay there because we have not altogether removed the predisposition to decay. In the other case we have removed it pretty thoroughly and we are going to preserve that tooth. I have come to the conclusion of late years, very deliberately; that the recurrence of caries, speaking in a general way, is the fault of the operator.

Of course, there are cases in which it is the fault of the patient beyond a doubt. You fill a tooth in a patient's mouth, and they have other cavities which are not filled, and there is too large a dose. Or the patient may be so utterly careless about environment that the growth of the fungus is so rapid and the production of the eroding acid is so great, that these teeth fall victims; but speaking generally, where ordinary care is taken of the teeth, then I think the recurrence of caries is largely the fault of the operator. We have cut out that defect, we have filled it, but we have not quite made a perfect union down this line. Why are we going to have a recurrence of caries? Because we have made a defect which is the same in character as nature made; we have left a crevice as it was here. Where that filling has preserved that tooth for five or six years and then we have recurrence of caries, that is the fault of the patient.

I want to call attention, before I sit down, to a matter relevant to the one under discussion—prophylaxis—which forms really the spirit of Dr. Johnson's paper, and to call attention to the work that Dr. Smith has been doing for the last six or seven years. He is an enthusiast, of course, and possibly claims more for his operation than is justified, but he certainly has achieved most extraordinary results in the mouths even of children five or six years old, where we almost always see these first molars beginning to show signs of caries, and by his methodical cleansing of these teeth about once in three weeks to begin with, rubbing them carefully over every particle of surface with a piece of soft wood and finely powdered pumice, the fillings that are put in these teeth do not have recurrence of

caries nor other cavities which would otherwise undoubtedly have developed. While I believe there are possible changes of nutrition in enamel, I am not quite prepared to go so far as to suppose that after it is actually partially decalcified it is recalcified because the erodent is removed; but in this connection, carrying out the idea Dr. Johnson has suggested, it is within the reach of the operator to very materially improve the immunity of any mouth, I think the practice of Dr. Smith within the last six or seven years corroborates that idea.

I want to ask Dr. Johnson just what he means by environment. I don't know just exactly from the paper what construction he puts upon the word, whether he means the local conditions in the mouth and in actual contact with the teeth; whether he means the air we breathe or the food we eat which come in contact with the teeth, or both, or whether he means the general constitution and condition of the patient? What do we mean by environment in its relation to the development of caries? If it is simply local conditions and that only, then cleanliness would seem to be the natural means of getting rid of that environment and making a new one, which is that of cleanliness. I have mentioned before that changes take place in the teeth themselves. You might call that the environment, if you please. It is in a sense environment, so far as our operations are concerned. Changes take place in the teeth themselves which are beyond the control of the dentist, so far as we are yet aware. By way of illustration, some years ago I had as a patient a young Englishman who had been in this country for some years. He came into the office one day simply to have his teeth examined, because both his brothers had teeth which required a good deal of attention. He had thirty-two absolutely perfect teeth, not a stain on them, not a mark on them. I am not sure I have ever seen that set of teeth duplicated in all the years I have been in practice. They were perfect in form, in alignment, in occlusion, and in construction, apparently, and I congratulated him upon his masticatory apparatus. Five years from then he had not a single tooth in his mouth that had not been filled or that required filling. His methods of life had not undergone any change; he had taken the same pains, so far as ordinary efforts of cleanliness were concerned, and yet, from some cause or another, those teeth had entirely changed in their character in relation to the developing agency of caries. My conviction is, I cannot account for it on any other theory whatever than that the substance of these teeth had changed. I think that accounts for what we call senile decay, when we see teeth decay at eighty-five years of age which have withstood the ravages of caries up to this time; nature makes an effort under all conceivable circumstances to preserve life. I don't think there is any doubt about that at all, that the efforts of

nutrition are usually directed towards the maintenance of the vital organs, and when people get up in years and the vitality is lessened, naturally these organs or tissues which are not essential to life are not as well nourished as they were before, as the whole efforts of nature are directed to those which are vital. Teeth and hair are not vital. Elderly people lose their hair, and with some people who do not lose it it loses its nutrition to the extent that it turns white. Elderly people lose their teeth. My observation is that caries in elderly people is not confined to the cementum, which is exposed by recession of the gum, but the whole tooth becomes soft. I have under my care a gentleman, eighty-three years of age, who had preserved all his anterior teeth until about three years ago, but these teeth are melting away almost as lump sugar would melt away in your mouth or in water. There is no resistance to the instrument, and they are decaying, and not only decaying around the margins of the gum, but everywhere. He does not pay very great attention to them, but there is no doubt in my mind that the structure of those teeth entirely changed since I first saw them twenty years ago. I want the doctor to define environment.

DR. GOWAN.—I wish to congratulate Dr. Johnson on the comprehensive character of his treatment of this subject, and to say in my own observations I find the facts that we observe in operating are all an argument to show that caries is due, not to the structure or quality of the tooth itself, but to its environment. I have a patient who has chewed tobacco, for instance, until he was forty-five years old, and had never required the services of a dentist—at least, he didn't think he did—until about three years after ceasing to chew tobacco. Why is it at that age a number of cavities should develop in his teeth, and a rapidly progressing kind of caries? Then, again, in the case of sick persons who, during sickness and for some time afterwards, are known to suffer a fresh attack of caries. Isn't that an argument to show that caries is a matter of environment and not of tooth structure? The tooth is the same after as before sickness. We have every reason to believe that the external form and structure of the tooth, that is, the surface of the enamel, is the same when that patient is sick and during the months of convalescence as it was before sickness. But we know a patient confined to bed and fed upon foods that do not require vigorous mastication, at the same time, probably, neglecting the use of the tooth-brush altogether, as a great many of them do, it is an argument to show that that neglect is most likely the cause of a fresh attack of caries. In my own experience I find that very thing. I see, when carefully considered, that it is a part of the argument, that caries is due to the environment, and not the character of the tooth itself. So that I agree with Dr. Johnson.

DR. SPARKES.—We will now call upon Dr. Johnson to close the discussion on his paper.

DR. JOHNSON.—I am profoundly impressed with the interest this paper has created, and I am complimented by the character of the discussion. If I attempted, however, to answer all the questions that have been asked in detail you would not get away till to-morrow morning. So I shall only touch very briefly on some of the chief features which have been brought out.

I want to say just a word in regard to Dr. Miller's paper that was read at St. Louis in connection with this subject. I want to speak of that particularly because it is a significant paper, one that I hope you will all study. In that paper Dr. Miller used the argument that teeth must of necessity have some resistant power against caries, and cited some of the instances which have been cited to-day in proof of that, to the extent that a tooth would decay on one proximal surface, and a tooth that stood next to that would not decay, and arguing from that that teeth which did not decay must of necessity have some resistant power. It was my privilege to be present at that session, and I listened to the paper as carefully as I could. I particularly watched the illustrations Dr. Miller threw upon the board at that time, and while I hold Dr. Miller in as high reverence as an investigator as any man in the profession, it did seem to me that those illustrations, if I was able to interpret them, in some instances disproved the inferences he made in his paper. I should have liked very much to have drawn Dr. Miller out more fully than it was possible in the brief space of time allotted to his paper. I trust when that paper comes out you will all study it. It is a paper that will develop thought and study, and that is all we ask for. We do not ask that any man accept our ideas. It is simply that the profession may study and form their own conclusions from study. What I particularly aimed at to-day in my paper was to develop an interest in this subject of immunity and susceptibility as it affects us in our operations in the mouth. We may philosophize from now till doomsday, but unless we can accomplish something in the mouth all our philosophy goes for nothing.

The question was raised as to why it is that teeth behave differently under fillings. It is the easiest thing in the world to answer that. Teeth behave differently because there are different kinds of fillings. Not only that, but there are other factors in the mouth, aside from the resistant power of the teeth, which affect our fillings. Why is it a filling will fail in one mouth and not in another, both fillings being anchored in in the same way. There is the greatest difference in the stress that is brought to bear upon fillings in mastication. There is a mechanical problem which enters into this, which I will not discuss now. We may have a filling dislodged from a cavity

anchored in a certain mechanical manner and we may have another anchored in the same way and this filling will remain good. We can trace that if we are observant, ordinarily to the fact that in one case the stress of mastication was severe upon the filling and in the other it was not.

Along this line, I remember speaking one time, years ago, against porcelain inlays in bicuspids. A gentleman in the audience met me afterwards and said, "Doctor, I have a filling in my own mouth which absolutely controverts everything in your discussion." I said, "I want to see it." He opened his mouth and showed me an extensive porcelain inlay in a lower molar. It was in beautiful condition. I said to him, "Will you please close your mouth." He closed his mouth, and there was no tooth opposite. (Laughter.) Now, those things all enter into this factor of the failure of fillings.

Dr. Clark asked something about my observation in relation to the straight grain of enamel and straight hair. I have not made investigations into the question of hair with that particular relation in view, but he raised the point that we find usually very good teeth in the mouths of the negro race, whose hair is curly. I think it is more or less a fallacy; that the negro race have no better teeth than the white race, and the only thing that has given that impression in the profession and with people is this, that the black face makes the teeth look whiter. They are no more perfect. The colored porter that came over on the train with me on this trip showed gold fillings galore in his incisors, and I don't know but what there was a gold crown or two. I believe that structurally the tooth is no better in the colored race than in the white race when they are brought under the same environment.

One question was brought up in regard to the fact that teeth decay, or that the tendency is very great to decay of the teeth in mothers at the time of child-birth. I want to ask the question, Mr. President, whether that is due to the fact that is so often soberly advanced that the development of the fetus takes away some of the substance which sustains the teeth of the mother. Is that true? There never was a greater fallacy taught in all histology. Teeth are not built up and torn down like other tissues of the body. In all conscience there are enough solid constituents that go into the mother's system without taking anything from the mother's osseous structure.

DR. WEBSTER.—What about osteomalacia?

DR. JOHNSON.—That is a matter of nutrition, and there are others attacked by this disease beside pregnant women. There are enough solid constituents in the ordinary foodstuffs of the day that go into the system of the mother to build up the child without tearing down the mother's bony tissue.

It is a question of nutrition and assimilation, not of feeding. You may feed a mother all of the phosphates you wish

during that time; unless assimilation and nutrition is perfect you will not build that child up any stronger. Analyze the food that is eaten to-day, that goes into the system, to see whether there is enough of solid constituents, in proportion to the food that is taken into the system, to build up the child. Nature does not tear down the teeth of the mother to build up the teeth of the child.

This question of the pregnant mother has been studied very carefully by Dr. Black, and there was practically no difference between the constituents of a tooth from a pregnant mother and a tooth from a perfectly normal woman or man; neither was there a difference in teeth extracted from invalids of all kinds, so far as he was able to determine. I want to testify that the investigations that that man undertook at that time were not slipshod. I spent some time with him in his laboratory, and saw him carry through those experiments, and if there was any chance of mistake it was beyond human possibility to discover it. So I look with a great deal of respect upon his findings. I was impressed at that time with the fact that it is a matter of environment more than tooth structure in this matter of dental caries.

As to this question of toning up the constitution, I would not have the least objection to toning up the constitution. I think it is the proper thing to do, and still I have observed this frequently, that people who are invalids, and who had been in a low state of vitality for years and years, have been almost free from caries, and I have noticed individuals in the most robust health, never anything wrong, perfectly vigorous, and their teeth decaying rapidly. There is something beyond all of this—something that you and I must study for.

Teeth are a part of the human anatomy, and it has been stated they must therefore be subject to change, the same as the other structures. Now, let me call your attention to that one fact again, that while the teeth are a part of the human anatomy, they are, as I state in the paper, distinct from the other tissues of the body in one very essential feature, they are not built up and torn down by the processes of nature the same as the other tissues. You may break an arm and nature will fill in and heal the breach; you may take away a piece of nerve and nature will reproduce it; you may cut out soft tissues and nature will rebuild them. I want to find a man yet who ever saw a tooth built up where nature took away a part of it.

DR. WEBSTER.—What of the reported cases of fracture?

DR. JOHNSON.—And being glued together again by nature?

DR. WEBSTER.—Yes.

DR. JOHNSON.—A mistake. I do not believe that a tooth was ever fractured yet that nature healed. If it was healed, it was healed by the expert operator.

DR. WEBSTER.—We have a gentleman here who has a tooth under his observation that was fractured.

DR. JOHNSON.—And it had been glued together by nature?

DR. J. B. WILLMOTT.—It was undoubtedly broken across a part of it, and it is apparently now firm.

DR. JOHNSTON.—That is different. A tooth may be split and fastened together by the operator.

Now, let us go a little further. In regard to the function of the pulp. That is a very important question. The statement is made, if the pulp is simply for the purpose of building the tooth up, and does not afterwards affect it, what is the function of the pulp after the tooth is complete? I believe one gentleman in the profession has gone so far as to say that the pulp would better be destroyed immediately after the perfect development of the tooth. I cannot accept such teaching. The pulp has an important function that I wish to call your attention to, although it is entirely aside from this subject. In the first place you destroy the pulp in a tooth like that (refers to drawing on black-board), and particularly if the open cavity is exposed to the fluids of the mouth for any length of time; afterwards the tooth is more subject to fracture, and the enamel will break very much more readily than it will if the pulp is alive. But the most important function of the pulp is entirely lost sight of. Take a tooth such as this; subject that tooth to the greatest stress it can stand in mastication, we will say upon a molar like that, before destruction of the pulp; that tooth will stand two hundred or three hundred pounds; you destroy that pulp, do not even let it die itself, which is worse, do not let any infection occur in the canal at all, destroy the pulp yourself, take the pulp out, fill that pulp canal, take the best care you can of that tooth, and the patient cannot close down on that tooth within many pounds of what he could before the pulp was killed. I could sympathize with Dr. Willmott when he said he would not want to have all the pulps destroyed in his own mouth.

Somebody made the statement, and I think it is the best statement that was made, that this is a many-sided subject, that we cannot cover the subject by considering this or that point. I considered merely one or two points; I simply touched on them. This is a broad subject, and so is the question of the dental pulp, but I beg of you to save a pulp alive if you can, as long as you can, if you can keep the patient comfortable, particularly if that tooth is subjected to the stress of mastication.

The question was asked, What about the cases where the enamel is gone? Mr. President, I have seen any number of cases where the enamel was gone, where the tooth did not decay at all, with the dentine exposed, where there never was any enamel, and where the enamel had been worn off, and the dentine standing and not decaying. Is it a question of tooth tissue or environment in that case? Is not the dentine easily affected under ordinary conditions? We know when there is a carious

process going on in the ordinary way; the moment the decay gets through the enamel it goes into the dentine more rapidly. Why is it in some cases, where the enamel is entirely gone, and the dentine is exposed to the fluids of the mouth, that we do not find it decaying? Why is it we will find a cavity occurring in a tooth, and probably the enamel break away and leave a cup-shaped cavity, and the decay actually stopped in that tooth, even without a filling? Is that due to change of structure in the tooth, or change in environment? I believe it is due to a change in environment. I have seen a cavity that had been thirty years in a tooth without a filling, and the tooth not decaying further.

DR. McLAUGHLIN.—I have a case where the molars on each side have not a particle of enamel, and they were not decayed, and the central incisors and cuspids were very much decayed. What about the environment there?

DR. JOHNSON.—There may have been a difference of environment in the same mouth. Those surfaces of the molars that were not decayed were probably brought under the friction of mastication, which took care of the conditions. You may have a difference of environment in the same mouth.

Another question has been brought up in regard to the character of filling materials we shall use from the sixth to the sixteenth year. Now, I did not speak about the question of filling materials in my paper. It is a very proper subject; it is worthy of a paper in itself. I will say this, that teeth ordinarily developed are not too soft to accept gold. But in very many instances we find children at that age where it would be bad judgment to attempt gold on account of the tax upon the nervous system of the patient and the prejudice we would establish. We must use judgment in all these things. The main thing is to stop the decay. If you cannot use gold, use amalgam. If you cannot use amalgam, use oxyphosphate of zinc or gutta percha—anything in that case to stop decay. The presence of decay encourages fresh decay. By the suppression of decay the tendency is to a condition of immunity. We must not hedge behind this matter simply to do careless or slovenly work, when, by the proper direction of our patient we can so control the patient that we can do good work. If we have a patient that is nervous and we have tided them along for a little while, we owe it to the patient that the moment we can do perfect work we shall do that work, and not hedge ourselves behind the plea of the tooth being too soft to take gold.

Dr. Webster somewhat misunderstood the paper—and that was probably the fault of the paper, and in the hurried manner in which it was delivered—when he got the impression that I said there was no efficacy in cleanliness. I surely did not mean to say that, and I think if I had time to refer to the paper I would prove that I didn't say it. I said this, that it was not

solely or simply a question of cleanliness. If it were solely a question of cleanliness we would not find this happening, that in one mouth where extra care was taken of the teeth we find decay going on, while in another mouth where there is absolute neglect we find the teeth almost immune from caries. I am glad Dr. Webster raised that one point in connection with the subject. By the process of cleanliness we do develop in that mouth in which we find a tendency to decay, a condition of immunity very much earlier in life than if we left the patient to go without it. Cleanliness is a very important factor. I may have said, and I say it now, that it is practically impossible to keep all the surfaces of the teeth of the human mouth perfectly clean.

Dr. Pearson asked the question, What are the positive proofs to support the idea that it is a matter of environment rather than a matter of tooth structure?

I do not know that we can give positive proofs, except this: We find in a mouth, say, where the history of that mouth is that decay has been going on rapidly and where teeth have been lost through the process of decay, and we take a tooth from that mouth and examine it; and we take a tooth from another mouth in which decay is absent, the tooth probably having been lost through the failure of the periodontal membrane, and we examine those two teeth, and find the chemical constituents are practically the same. We find that the crushing stress of the enamel in the two teeth may be the same, and still there is that difference in decay in the mouth. We argue from that that it must be something aside from mere tooth structure which causes decay of the teeth. The question of erosion is entirely different from the question of ordinary caries. Dr. Willmott said truly there were many factors entering into the question of decay and many manifestations of caries of the teeth.

There was another case cited where the tooth was worn down for some distance so that the dentine showed and even the outline of the pulp chamber, and still in that pulp chamber there was a deposit of dentine which prevented the death of the pulp. In speaking of the reaction of dentine, we do not mean to imply that there is no resistant property against the approach of decay to the pulp of the tooth on the part of the pulp itself. In other words, take a tooth of this kind (refers to drawing on board), supposing we have here the pulp, and decay beginning at this point, and the wearing away of this cusp. Now, as that process begins to approach the pulp, if it extends slowly enough the pulp throws out a deposit of secondary dentine to protect itself. You see the outline of the original pulp plainly marked as this process goes on and the crown wears down. If the wearing down occurs too rapidly the pulp is encroached upon, and it cannot resist and it is destroyed. We often find that the pulp will throw out a deposit of secondary dentine and protect

itself in that way. That does not imply that it changes the character of the surrounding dentine. When we get the impression that the dentine is hardened under those circumstances, we will find ordinarily that it is simply a polished condition of the dentine which gives the impression of hardness. If you take a drill or an excavator and cut into that dentine you will find it has not changed in structure.

I want to ask a question with regard to a point brought up by Dr. Adams, who had a case of caries of the tips of the cusps in a woman of thirty-five years of age, where the teeth had originally been perfectly good. That is a most interesting case, and I want to ask something about the character of that decay. Was it practically a simple decay, or deep cavities with a lot of softened dentine in there?

DR. ADAMS.—It was quite a deep cavity, and extended down into the teeth.

DR. JOHNSON.—With a great deal of leathery dentine?

DR. ADAMS.—No, there was not so much of that.

DR. JOHNSON.—I should account for that case in this way: That was one of the cases that Dr. Willmott referred to. It was not an ordinary case of caries; it was a case where probably erosion had been the first attack of the disease, where the cusps were eroded down to the dentine, and then decay went on in the ordinary way where there was a little harbored shelter for the micro-organisms to work in.

DR. ADAMS.—There was no erosion at all; no wearing of the cusps; they were perfect points on the cusps of the teeth, and no sign of erosion.

DR. JOHNSON.—How long from the time you saw the teeth in a perfect condition until you saw them decayed in this way?

DR. ADAMS.—Within a year.

DR. JOHNSON.—There may have been erosion of those cusps in six months. There was either some erosion of that kind, or defect in the development of the cusps, because the wearing of a cusp in the process of mastication would wipe off the micro-organisms or the gelatinous placques under which they are supposed to work.

With regard to Dr. Willmott's remarks, I should like to say that, when I mention the name of Dr. J. B. Willmott before this audience, I do it with a great deal of reverence. (Applause.) He is the man who started me really to thinking on dental topics. While we do not think alike on all things, I respect every opinion that he has, and I am very proud of the fact that, although he came here physically unfit to take part in this discussion, he has discussed the paper as he did. I accept that as a compliment, and if I criticize some of his ideas, he understands my real sentiments, even if you do not, and that is sufficient for me.

When he cited the case of irregular teeth, where they did

not decay, and spoke of the fact that on that account there must of necessity in that mouth be a certain resistance in the tooth tissue itself, I will ask him to subject one of those teeth in that mouth, which may have gone twenty or thirty years without decay, to the test of putting a band around it without cementing it on, and see how long that tooth will go without decaying. The tooth will soon be girdled by decay. It is not a question of the resistance of those teeth at all, it is a question of environment, and you change the environment by putting a band around there and protecting those micro-organisms so that they can work. I think I said incidentally that there was not a mouth that had ever been examined but what had some of the micro-organisms of decay in it; that they could not always work was due to certain conditions surrounding them which we do not yet understand.

The doctor has also brought up another question in regard to susceptibility and immunity. He asked the reason why it was that the people of a family, subjected to the same environment, to the same kind of water, would have typhoid fever, and others in the same family would not have it, and asked if there was not some resistant property in the tissues of one individual that kept him free from typhoid fever. We may take an individual and start him along with small doses of the typhoid fever germ, for instance, and gradually go on further and further increasing the bad water, until in the case of that patient we get a condition of immunity to the attack of the disease, so that they can with perfect immunity drink water that would drive another patient not accustomed to it into typhoid fever at once. It is a notorious fact in some of the eastern countries where they drink bad water, that the natives can drink that water without any danger of infection at all, while visitors coming in and drinking the same water are immediately taken sick, almost to an individual. It is simply a question of developing a condition of resistance in that one constitution against the attack of the germ. An examination of the tissues may show exactly the same character of tissue. In other words, I believe it is not resistance in the tissues themselves, so much as it is in the fluids. I said in the paper that there were many chemical compounds in the human economy that we did not understand very well yet, and some of those compounds resist infection, and some invite infection. So I believe it is with the teeth, that there is not so much difference in the structure itself as in the surroundings.

Dr. Willmott has also asked the question as to what is meant by environment. I cannot answer that question. I wish I could. I simply know that the factor that enters into this, whether it be constitutional or local, is something outside of the tooth rather than something connected with the tooth structure itself. If you say that it not important, let me go back to

the same old statement you and I have been making, to our patients time and again when a filling failed, that the tooth was too soft to hold the filling; or, when our back got too tired and we did not want to work sufficiently long to insert gold, we would say, "That tooth is too soft to hold gold," and we would use something easier. It makes the greatest difference in the world in a man's attitude and duty towards his patients and in the kind of service he gives them.

Here is another illustration that Dr. Willmott used. He said we may find a tooth in which the filling has been doing good service for years, for, say six or eight years, and then it suddenly fails, and the reason it failed, in his mind, was because the resisting power of the tooth had deteriorated. In other words, that if it was the fault of the dentist it should have failed immediately after the operation. Is that the idea, doctor?

DR. WILLMOTT.—Yes. All infection is a question of dose and resistance. We may have got a larger dose, or we may have got less resistance.

DR. JOHNSON.—I think it was a case of less resistance, but in an entirely different sense from what the doctor speaks of. I think it was a case of less resistance in that filling under the stress of mastication. The filling moves under that stress and causes failure and decay more often than we give it credit for. Unless we anchor our fillings in the best mechanical way, this stress of mastication will, sooner or later, lift the fillings slowly away from the wall, and then we have a leak and then a recurrence of decay.

DR. WILLMOTT.—Is it not possible, indeed, is it not probable, that what you speak of as environment acts in facilitating the development of the germs?

DR. JOHNSON.—Most assuredly—

DR. WILLMOTT.—We know that there are certain conditions of moisture; heat and quiescence are essentials; there may be other conditions which mar or facilitate the condition.

DR. JOHNSON.—That is the profoundest truth. I could not in a paper take up all these conditions which enter into or against the question of susceptibility, but the very thing the doctor has brought up is true.

DR. McLAUGHLIN.—You said it was a matter of environment. Would you add to that nourishment, and by that I mean nourishment through the pulp tissue?

DR. JOHNSON.—The nourishment that the pulp gives the tooth after the tooth is perfectly formed is one not of circulation, but simply one that prevents its integrity from being so easily destroyed, or, in other words, prevents it from being readily broken.

DR. McLAUGHLIN.—Then the matter of the system or constitution has very little or nothing to do with the decay of the teeth?

DR. JOHNSON.—My impression is that the system may have something to do with it in bringing about the conditions which allow the micro-organism to do its best work there, but that the system does not affect the tooth to build it up or tear it down after it is once formed.

DR. McLAUGHLIN.—Not even to keep it in good tone?

DR. JOHNSON.—I don't know what you mean by that. The pulp tissue will prevent the tooth from breaking so easily under stress. You take a tooth out of the mouth and subject it to dryness, and you change the bulk of that tooth, and it breaks more easily. That is true of pulpless teeth that are long exposed to the fluids of the mouth. But that it makes the tooth tissue harder or softer I do not believe.

I want to take up another question that Dr. Willmott has raised. When we come to these pits in the buccal surfaces of molars I think they are due to developmental defects, exactly as he has said. I think the failure of the islands of calcification to coalesce will leave a leak in which we have a harbored shelter for micro-organisms to work, so I agree with him here perfectly. But when he comes to the proximal surface, I have yet to see the tooth, and I have examined a very great many natural teeth, where a pit was left in the development of the tooth upon the proximal surface, such as we find upon the buccal surface.

My explanation of the recurrence of decay in proximal surfaces is entirely different from his. When recurrence takes place around a proximal filling it is not usually at the developmental line, on account of weakness of the enamel at this point, but at the gingivo-buccal and gingivo-lingual angles, because there is a certain area here which is not kept clean by the natural processes of friction. The reason we have decay in this surface, in the first place, is due to an entirely different cause from that which the doctor has indicated, not because we have developmental defect there, but because we have a little harbored shelter in which those micro-organisms can work and bring about decay. You may have the most perfect enamel in a human mouth, and by subjecting that to certain conditions the decay will begin.

DR. CLARK.—We very frequently have teeth where the proximal surface is bare, not touching any other teeth, through extraction. How often have you found caries that would seem to be from a defect in that line in the proximal surface of the tooth?

DR. JOHNSON.—That is a strong argument against Dr. Willmott's position. If you have a tooth taken out of the arch, say the second bicuspid, and leave the mesial surface of the first permanent molar exposed, with no decay in it, how often do you find decay occurring at that point?

DR. WILLMOTT.—You do occasionally; there is no doubt

about that. I have seen very many cases of that kind. Admitting that there is the defect there, that surface is self-cleansing.

DR. JOHNSON.—Yes, it becomes self-cleansing.

DR. WILLMOTT.—Notwithstanding that we do not infrequently find caries developed in that particular place.

DR. JOHNSON.—If we find caries upon a surface like this, that is exposed without any teeth in contact with it, it was either a defect when the other tooth was extracted or else decay begins lower down near the gum margin. I have examined a great many natural teeth, and I do not find upon these proximal surfaces those developmental defects or pits that I find upon the buccal surfaces of the molars and on the lingual surfaces of the incisors.

This has been a very interesting session to me, and I want to express my deep appreciation, not only of the reception of the paper, but the kindly reception that has been given to me. I want to say on this occasion, gentlemen, that coming over here is like coming home. I have some of the best friends in the world, I think, upon the other side of the line, still the moment the train comes across here and I touch this soil there is a different feeling, and so I am always glad to attend your meetings. I am deeply appreciative of the kindly welcome you give me, sometimes more than I can express. I am complimented that there should be such an excellent turn-out here. I am also complimented by the discussion that has taken place on this paper. I wish it were possible to develop some phases of the subject more than I have. It is a very broad subject. All that I can ask of you now is, at the conclusion of the paper, to take this subject home and study it in the mouths of your patients. That will do more good than all the talking I could do. I promise you this, that after you have done that for a time you will not be so discouraged as you have been in the past or as I have been in the past when a case of very bad decay comes along.

The question was raised as to why teeth decay so rapidly in pregnant women. I recall a case very vividly to my mind where a woman came under my treatment, some sixteen or eighteen years ago, probably, and that woman had children right along, step after step, and it was a hard matter for me to catch her a few minutes between times to fix her teeth. (Laughter.) I fought for her teeth and so did she, to the best of her ability. I said, "We will not give those teeth up; you cannot go around with an artificial plate in your mouth at your age." She went on and had probably eight or ten children. Her youngest child must be now five or six years old. That woman has not lost a tooth by extraction since I took charge of the case. Some of those teeth are filled with oxyphosphate of zinc, some filled with amalgam, some with gutta percha, some with gold—gold fillings—and last, the best of all, some are crowned; and when one gentleman to-day said he had lost all

of the teeth of a certain patient who had been bearing children, I could not help wishing that he had crowned those teeth. A crowned tooth is better than an artificial plate. When a tooth gets so far away from us that we cannot fill it, let us put an inlay in; and when we cannot do that, let us put a crown on it. I never give a tooth up unless the peridental membrane is gone.

If the time ever comes when we will have to put in an artificial plate for the woman I just spoke of, her expression is now so established that we will not make a pie-face of her, as would have been the case if a plate had been inserted when she was young.

Try to save the teeth; do the best you can for your patient, and my experience is this, that if we demonstrate to the patient that we are absolutely honest behind it all, and doing our best in his or her interest, the patient ordinarily will co-operate with us. (Applause.)

DR. SPARKES.—I am sure we have all been interested and profited by the paper and the discussion this afternoon. We will now adjourn, to meet at eight o'clock p.m.

Proceedings of Dental Societies

OFFICERS OF THE ONTARIO DENTAL SOCIETY.

Hon. Pres., A. W. Thornton, Chatham; Pres., J. R. Mitchell, Perth; Vice-Pres., F. T. Coghlan, Guelph; Sec'y., G. Arthur Roberts, Toronto; Treas., G. Angus Kennedy, Toronto; Supt. Clinics, W. E. Cummer, Toronto; Archivist, W. E. Willmott, Toronto. Programme Committee—W. Seccombe, Toronto; G. Arthur Roberts, Toronto; A. J. McDonagh, Toronto; C. H. Waldron, Toronto; G. Grieve, Toronto. District Representatives—(1) M. G. McElhinney, Ottawa; (2) O. A. Marshall, Belleville; (3) F. D. Price, Toronto; (4) W. C. Gowan, Creemore; (5) D. Watson, Brantford; (6) A. E. Cummings, Thornbury; (7) S. M. Kennedy, Leamington.

THE MISSOURI STATE DENTAL ASSOCIATION.

The Missouri State Dental Association will meet in the city of St. Louis, on May 24th, 25th and 26th, 1905. An excellent programme of papers and clinics is being prepared, and all ethical members of the profession are cordially invited to attend.

SAM. T. BASSETT, Cor.-Sec.

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.
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VOL. XVI.

TORONTO, MARCH, 1905.

NO. 3.

MECHANICAL DENTAL LABORATORIES.

There is an ever-increasing number of mechanical dental laboratories in Toronto and other cities in Canada. It seems to be a fairly profitable business, and well supported by the profession. These mechanical men have been trained, as a rule, in a regular dental office, and in that capacity became acquainted with dental operations and many patients. There is more money to be made in running a laboratory for the profession than working on salary, and also a chance to do a few dental operations for patients. Gradually they do more and more of this illegitimate practice until they become very bold and are rounded up by a detective of the R.C.D.S. and fined. This would seem to have been the history of one man in Toronto. In any calling a specialist must stick to his specialty, or the members of the same calling will not recommend him. It ought to be suicidal for a mechanical dentist to do dental operations for patients. No dentist should patronize a man who has been known to deviate from his specialty, and especially should they not patronize a man who has been infringing the dental laws.

Editorial Notes

THERE was a special meeting of the Board of Directors of the R.C.D.S. the last day of the meeting of the Ontario Dental Society, to consider the conduct of some dentists of Ontario who are not living up to the provisions of the Dental Act.

THE Dominion Line, having heard that the British Dental Association has invited the Canadian Dental Association and the National Dental Association of the United States, to their meeting, to be held in Southport, on May 22nd and 23rd, have decided to make special arrangements for such of the delegates who may desire to sail from Montreal. These arrangements will be made by the large twin-screw steamer *Dominion*, to sail on May the 6th from Montreal. There will also be an arrangement made for a party to sail on the *Vancouver*, May the 10th, at a very low rate. For further information apply to Dr. E. Dubeau, President, Canadian Dental Association, 396 St. Denis Street, Montreal, or to Mr. R. F. Macfarlane, Passenger Agent, Dominion Line, 17 St. Sacrament Street, Montreal.

Correspondence

To the Editor of DOMINION DENTAL JOURNAL:

DEAR EDITOR,—Will you kindly allow me space in your valuable journal to correct a grave misstatement made by Dr. Wunder in his paper, "Something about Bridgework," which has been published in the February journal and sent broadcast among the profession? In the first place the Doctor says, "My method of reinforcing the facings is by grinding them from the pins to the cutting edge and making a backing which extends one-eighth of an inch above the cutting edge. In soldering, leave this backing exposed its full length and let the solder flow over it. This will, when sawed off, give the required thickness at the cutting edge." This method originated in my own brain. It was taught by me at the practitioners' course in 1899, and also at a clinic at the Canadian Dental Association at Toronto in 1904, previous to which we had never heard of anything along this line from Dr. Wunder. I have on several occasions shown and explained this method to Dr. Wunder in my own office. Now we come to the grave misstatement. To quote the Doctor's words: "I see the time coming when the mechanical dentist, with his beautiful sometimes, but almost always poor-fitting bridge, will be a thing of the past." I have

made thousands of bridges for the profession, and the profession only, and I can call to mind no case of misfit. Furthermore, I will guarantee that, where a dentist follows out my instructions, and gives me what I require to construct the work, I will make a perfect-fitting bridge every time. The leading gentlemen in the profession can also certify to the superior quality and accuracy of my work. The only difference that I can see between a dentist taking the impression and having the work constructed in his own laboratory by an assistant who is being taught, and who makes only an occasional bridge or gold plate, and sending it out to (I may be pardoned for saying it) an expert, is that in the latter case his patient will get a much more superior piece of work than he would in the former.

I am sorry to say that there is one evil that may bring the public laboratory into disrepute. I am told that patients are being taken, the work constructed, and a fee collected, by a certain man in the city. Such a thing has never happened in mine. Dr. Willmott, I am sure, will bear me out when I say that I have strenuously denounced all such practice.

Thanking you for the space, I am,

Yours very truly,

EDWIN T. CAMPBELL,

Proprietor, Toronto Public Dental Laboratory.

41 Major Street.

PRACTICE IN GOOD TOWN IN MANITOBA
FOR SALE.

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Dominion Dental Journal

VOL. XVII.

TORONTO, APRIL, 1905.

No. 4.

Original Communications

PRESIDENT'S ADDRESS.

BY A. W. THORNTON, CHATHAM.

Delivered before the Ontario Dental Society, March, 1905.

Will you kindly take it for granted that the conventional parts of a President's address, viz., "Another year has rolled away," "Glad to welcome so many at this meeting," "Trust that pleasure and profit will result," are read and approved.

Two articles which appeared in the journals during the past year will furnish a foundation for the few things I wish to say at this time. The first article was headed, "Is a Man a Fool to Study Dentistry?" the second, "Dentists' Fees."

In discussing these two themes I will confine myself to the Province of Ontario, as I see it.

Do the dentists of Ontario, in the estimation of the people generally, take rank with those in law, medicine, or theology? If not, why not? What usually determines the place which any citizen occupies in the estimation of the general public? I think we are safe in saying, in answer to this query: First, intelligence; second, moral integrity; third, financial standing; not, perhaps in that order, for possibly in scriptural language the last should be first; for alas! in this country, as in other countries, money, not mind, is the measure of the man; and a man's earning ability largely determines the niche which he shall occupy in this "vale of tears."

We may dismiss entirely the questions of intelligence and moral integrity, for our matriculation is as high as that for law, medicine, or arts, and the time spent in our special train-

ing is, on the whole, greater than that spent by those in the other callings mentioned; and from a moral standpoint, dentists will compare favorably with any other class in the community.

Why, then, do we not receive the recognition? Simply because we do not make the money? Why do we not make the money, where does the fault lie? Primarily with ourselves.

We put a low estimate on our own services. Can we wonder if the public takes us at our own valuation? A dentist fills a tooth for fifty cents, seventy-five cents, or a dollar, and the patient thinks he's overpaid. A physician, in less time, removes an enlarged tonsil and gets from fifteen to fifty dollars. A dentist removes a lot of broken-down roots and teeth, inserts an upper and lower denture, and gets possibly twenty dollars. A physician puts a stitch in a lacerated uterus, and gets one hundred dollars. A dentist spends a day filling teeth with gold and gets from ten to twenty dollars for time and material. A lawyer spends a day on a case and gets a hundred or a thousand dollars. A dentist spends an hour trying to fill perfectly the roots of a molar, and gets possibly a dollar and a half. Ernest Thomson-Seton speaks over here at the Y.M.C.A. for an hour, and gets one hundred dollars.

That the dentists of this province do not take the place they should take as citizens, needs no proof. Occasionally one becomes a school trustee, and the event is looked upon as proof positive of a successful career. Should he become an alderman he is looked upon as a prodigy, and if by chance he should become mayor of the town, he has scaled the dizzy heights of fame. But, thus far, no Ontario dentist has ever sat in the local legislature, the federal parliament, or the senate, and only one, so far as I am aware, ever received an office in the gift of the government. This is not true of law, medicine, arts, or even theology. Why should it be of dentistry? I leave you to answer the question for yourselves.

But there is no use crying over spilt milk. We may or we may not have been fools to study dentistry; that is a debatable question. But we certainly are fools if we do not make the most and the best of our lot.

What can we do? We can raise the standard of, as well as the fees for, our operations.

I undertook some time ago to keep track of the fillings observed in the mouths of patients coming to my office, and I think I am within the mark when I say that not two per cent. of the cavities back of the mesial surface of the cuspids are filled with gold or porcelain. Instead of putting in amalgam fillings, for which we get fifty cents, seventy-five cents, or a dollar, let us put in gold fillings or gold or porcelain inlays, and get three or four, or five or six, or eight or ten dollars.

Our patients will be better served and better satisfied. We

will require fewer patients to keep us busy; the overcrowding of the profession will be done away with; people will value their own teeth and their dentist's services more highly, and dentists will take a place in the community from which they have been too long debarred, largely because of their inability to earn money commensurate with the services they render.

(For discussion see page 138.)

SENSITIVE DENTINE.

BY F. T. COGHLAN, GUELPH, ONT.

Read before the Ontario Dental Society, March, 1905.

I am writing this paper not as one who knows very much about the subject, or even thinks he knows it, but from the fact that I received such a very gracious request—nay, even more, a command—from the worthy Secretary of the Programme Committee, that I felt it would be unbecoming the dignity of any member of our profession to do otherwise than to bow graciously to his decree.

The subject of this paper is, I am sure, a most familiar one to every member of our profession, and even to the student in his early days of operative dentistry. It is a bugbear to every practising member, with no exceptions but those who have mastered the subject—and as far as I have been able to learn, that number is exceedingly few. Some there are who may perhaps think they have been able to overcome the difficulty, but from the point of view from which the patient sees it, or I should more properly say, feels it, the apparent remedy is far from a success.

On our ability to deal with this obstacle in our daily practice, depends largely the opinions our patients form of us as to whether we are kind or cruel dentists. I do not say that we are judged solely on this point; but I do say that this is the most important point, from the fact that the sensation of cutting sensitive tooth structure is not only a pain, but a fear and dread as well, which can only be explained by having the actual experience in operations on our own teeth. It has been truly said that in the excavating of a sensitive cavity, a person suffers more pain than he really endures. This is doubly true from the fact that the patient suffers the pain of dreadful anticipation, which may never be, and seldom is, materialized.

It is here the dentist may make use of his sympathetic nature, which every true member of the dental or medical profession should possess, and by the careful manipulation of his instruments, or a kind, assuring word, may relieve largely the existing pain, as well as the imaginary one. Some people say all pain is imaginary. I have not been able to follow that doctrine, but will say that very

many of the troublesome pains of mankind are pure imagination ; but whether imaginary or real the effect is quite the same to the one who suffers. I feel that in our profession there is a broad field for the kind, assuring disposition of each member to do effective and good work.

I have heard, and I venture to say that all in the room have heard, patients of some dentist (we will each hope it is not ourselves) express themselves after this manner, "He is a brute," or some like expression equally as unedifying. Now I do not think there is any excuse for a dentist who allows such opinions to be formed concerning him. It is not because of the pain he has produced, but the way in which he has caused the pain to be suffered, without due consideration on his part for the feelings of his patient.

It may be said of all of us, some more than others, that owing to ill health, mental worry, etc., there are some days when we do not feel in the mood to act in the best interests of those who entrust themselves to our charge. We should not, however, forget our duty to our patients at these times. I think it well under such circumstances, and where possible, to dismiss the patient until such time that we can give him or her proper and efficient services. If we have our profession at heart, and always consider the best interests of our patients, often we would refrain from many physical abuses which we otherwise subject ourselves to. I know there are few, if any of us, who always consider the interests of our patients first, but when we have chosen the profession that demands so much, we should try as far as possible and reasonable to comply with the requirements of our duties.

I know that at times when working on sensitive dentine I have placed all the blame of preventing quiet procedure on the patient, and at other times I have felt that I was the cause of all trouble. With a little reasoning, one will invariably find that there is a medium which may be reached altogether through the actions of the dentist, aided by some mechanical or medicinal assistance. That is to say, that the kind, sympathetic, performance of our work, aided by some of the various means known to the profession for the desensitizing of tooth structure, we may perform the operation of cavity preparation painlessly, or at all events nearly so.

Just what these agents may be I cannot enumerate, but hope that in the discussion of this paper every known effective remedy for sensitive dentine may be brought up and placed before the members here, for the vast benefit of suffering humanity.

Much pain can be avoided by the kind of instruments we use for the removal of diseased portions of the tooth structure. For instance, a spoon-shaped excavator will do its work with much less pain than will the square-cornered instrument. Of course I refer only to the sharp instruments. A dull instrument should never be used in a cavity, from the fact that it causes unnecessary pain, and much valuable time is lost in trying to accomplish what you can do in a very short time with a sharp, clean-cutting instrument. This remark applies even more particularly to burrs than to excavators.

We too often lose sight of the fact that our burrs are becoming

dull and useless. They may be sharpened by using a thin-edged Arkansas stone between the cutting flanges. When you can no longer make them cut satisfactorily in this way do not be afraid to discard them and get new ones. The time saved by sharp instruments will doubly compensate for the cost of keeping them so, as well as save your patient much torture.

I have used several remedies for sensitive dentine, but have not yet found anything better than, after having dried the cavity out as well as possible with absorbent cotton (the rubber dam, of course, being in place), to wipe the cavity freely with carbolic acid, and then alcohol, followed by a blast of warm air until the medicants are thoroughly dried, when the bottom and walls of the cavity present a dried and whitened appearance. This has the effect of drying and destroying sensation in the outer portion of the contents of the dentinal tubules, which so readily conveys sensation to the dental pulp.

There is, I understand, a very effective remedy which is virtually only a means of applying more effectively the method just mentioned, and that is in the nature of a compressed air appliance, now on the market. I would like to hear from any who are using this method, and know if they have found it as effective as it is claimed to be. If so, then an appliance of this kind should be in the office of every dentist who at all considers his patients.

We find that on the location of a cavity depends largely the amount of sensitiveness. For instance, a cervico-buccal or a cervico-labial cavity are much more painful to excavate than a cavity in the morsal or grinding surface of a molar. These two classes of cavities, I think, express the extremes of sensitiveness and non-sensitiveness. In different patients we find the degree of sensation varies, and even in the same patient we notice that in the excavation of similar cavities in adjoining teeth a difference in degree of pain is often felt. This may be caused by the depth of the cavity, or that the one may be more readily cleansed by the act of mastication or by the wash of the saliva. It is very difficult, and often impossible, to say why certain cavities should be so sensitive. The fact remains, they are sensitive, and it is for us to deal with that condition of affairs.

Therefore the inevitable problem that confronts us is, How can we best overcome the difficulty?

DISCUSSION.

BY JOHN ROBERTSON, OTTAWA, ONT.

In opening the discussion on sensitive dentine, I desire to offer the same excuse as Dr. Coghlan, and say I, too, could not resist the gracious request from the worthy secretary of the Programme Committee, and consequently "have bowed graciously to his decree."

The essayist has dwelt particularly upon the ethical side of his subject, and those of us who have been in practice any length of time, cannot but agree with him when he says sensitive dentine is a

bug-bear to every conscientious practitioner. I might go further, and say it is the cause of our own vitality being consumed in the effort to not only control our own nerves but to allay the nervous and very often assumed fear of our patients, when our own physical energies are subject to as great a strain as theirs, when our best efforts are met by open rebellion, and when in desperation we mentally wish our hypersensitive patient anywhere but in our operating chair, in order that we could have an opportunity to give vent to our pent-up feelings, and ask ourselves who is the greater martyr : the patient or the dentist ? In this frame of mind and in this physical state we do, perhaps, sometimes earn the unenviable reputation of being a " brute"; but if we are conscious that we have done our best we can accept the unsavory epithet as did the late Dr. Temple, Primate of all England, who said the greatest compliment he had ever received was from one of his students who, in writing to his father in relation to some school-boy grievance, consoled himself with the reflection that he expected to get justice, because, although Temple was a beast, he was a just beast. It therefore behooves us to earn the reputation of being a just dentist.

Some of the primal causes of sensitive dentine are a lack of oral hygiene, a want of cleanliness, a negligent manner in using a tooth brush, the use of highly advertised nostrums guaranteed to whiten the blackest teeth, and may I be permitted to add the fashionable chef, followed by our good friend the doctor—the former ruins our digestive organs with highly-spiced condiments, delectable pastries, sour salads, boiling consomme and cooling ices ; the latter comes to our rescue with some of the salts of iron, or perhaps some other less harmful remedy, in order that we may have the nerve to attribute our discomfort to anything but an insatiable appetite.

Now, as to the many remedies for sensitive dentine, the essayist has, with a few exceptions, left out their enumeration with the hope that in the discussion "every known effective remedy may be brought up." The alleged remedies are legion, but the effective remedies are comparatively few. They may be divided into systemic and topical, and perhaps we might add hypnotic suggestion as a happy auxiliary to both. Unless in very severe cases I am not in favor of systemic remedies; but should the patient's nervous system be in a hypersensitive state I would advise sodium bromid, twenty to thirty grains, in hourly doses of ten grains ; or, if the system is in an atonic condition, if time would permit, tonics would be in order. In counteracting the acid condition of the oral fluids I know of no better alkaline wash than bicarbonate of soda or Phillips' Milk of Magnesia—this preparation should be used frequently not only to rinse out the mouth, but also on the tooth brush, especially if the sensitive cavity is situated on the cervico-buccal or cervico-labial surface, where the essayist rightly says we find the extreme of sensitiveness.

The topical agents which I find the most satisfactory are the old reliable, such as carbolic acid, oil of cloves, zinc chloride, nitrate of silver, using some of them in the manner as suggested by the essayist. Nitrous oxide or ethyl chloride might be added as

valuable adjuncts in preparing cavities on the cervico-buccal or cervico-labial surface.

Another, and what I consider an important, factor in the treatment of sensitive dentine—in fact, I might go further and say in the practice of dentistry—is oral prophylaxis; but as we are to have a paper on that subject from Dr. Davy I will not transgress on his domain, but will conclude by congratulating Dr. Coghlan on the pleasing manner in which he has introduced the subject of sensitive dentine.

By E. CUNNINGHAM, PARRY SOUND, ONT.

My consenting to open the discussion on Dr. Coghlan's paper seems like presumption, and my only excuse is that I desire information, and the surest way of getting it is to make assertions for those who know more about the subject to criticise.

Dr. Coghlan states that "there are some days when we do not feel in the mood to act in the best interests of those who entrust themselves to our charge." I certainly agree with him that it is better to dismiss the patient and all others and then get away from the office. Take your gun, canoe, snowshoes or golf clubs and spend the day in the open air. It will do you more good and your patient, too, than trying to work, as work done under these circumstances is at too great a cost to yourself if done as it should be, and too much suffering and dissatisfaction to the patient if not, and thence to yourself, as it all comes back on the dentist.

I am using carbolic acid in a slightly different manner from Dr. Coghlan. After the dam is in position and the cavity dried out as well as can be with cotton and spunk, dip a piece of spunk in carbolic acid and place in cavity; then heat a burnisher or ball-headed plugger and apply to spunk, gently at first, and then with pressure, and repeat till all sensation is gone. In some patients the heat causes excruciating pain, and for those cases I use ethyl chloride, always being careful to place a napkin under the dam to prevent any overflow coming in contact with the face. Where these two methods are objectionable turn to the gas (Hurd System). You do not require to put a patient to the point of complete anesthesia, or near it, in order to excavate sensitive dentine. In fact, if your patient is not hysterical, very little gas is required, and the patient is quite conscious of everything going on, and can give you a rational answer at any time during the operation.

In the majority of cases honesty and frankness will relieve most of the pain, as fear and dread of the pain expected will tire a patient more in an hour (even if they are not hurt in the least) than half a day's work.

So before starting an operation I invariably tell the patient that I will let them know when it is going to hurt and then do so, and also ask them to sit perfectly still for a second. I find in nine cases out of ten the patient will meet your wishes and think they have not been hurt very badly after all; but never make a cut on sensitive dentine without first giving warning, as once taken unawares they are continually expecting a repetition.

There is one class of patient in particular that I would like

very much to know how to treat—those invariably five to twenty minutes late for an appointment and “are very sorry to have kept you waiting.”

After she is seated in the chair and you have it adjusted to position required and pick up a mouth mirror, the tears begin to flow. You proceed to wipe out a cavity with cotton and there is a sob. You attempt to apply the dam and there is a groan and a downpour of tears. Try to use carbolic and heat and there is a shriek, and you come to the conclusion you are a brute, and the only way to overcome the difficulty will be to administer gas. After considerable persuasion she makes up her mind to try it and you proceed to administer. After about a dozen inhalations she tears inhaler off and flounces out of the chair and the sitting is over for that day and you are left in prime condition to administer to the needs of the patient following. If some afflicted one will inform me how to know these cases on sight he will earn my sincere gratitude.

(For further discussion see page 141.)

Clinics at the Canadian Dental Association.
September, 5, 6, 7, 1904.

INSTRUMENTATION AND FILLING ROOT CANALS.

BY JAMES M. MAGEE, ST. JOHN, N.B.

The instruments used are large-sized Gates-Glidden drills for enlarging orifices of canals, to be used only for that purpose and run by engine power ; the four smaller sizes of Beutelrock drills, to be used only in the fingers, never in the engine, those for the right angle being especially commended ; two smaller sizes of Donaldson canal cleansers, fine ivory broaches, and a special flexible instrument made from a fine Beutelrock drill, ground down to a hair-like point by being held against the side of a fine grit wheel and rotated while the wheel is revolving—the last named being used in fine canals, to open which the aid of acid is required.

First, free access was obtained to the canals ; then the orifices were enlarged with Gates-Glidden drills ; then the finest instruments were inserted in canals, enlarging those which required it, and these followed by the next larger size, each instrument extending into the canal a shorter distance than its predecessor and thus leaving a slightly cone-shaped canal, which is ideal for filling, since when tightly filled will preclude the possibility of pressure from above forcing the material through the apical opening.

The filling was gutta-percha points, of size selected to approximately fill the canal, much longer than the canal, and the solvent and lubricant, oil of cajeput. The point was inserted in canal, the foil carriers dipped in oil of cajeput and carried to the orifice of the canal and the gutta percha point then grasped and gently worked up and down until it extended into the canal to a certain mark previously made in measurement of its actual length. The whole process being identical, except in so far as the question of sensation is concerned, as actually takes place in practice.

TEMPERING FINE STEEL INSTRUMENTS.

BY W. A. BROWNLEE, MOUNT FOREST.

Steel is hardened by heating to a cherry red and dipping suddenly into cold water or oil. In this condition it is altogether too hard for cutting instruments of any kind. The temper is then drawn to suit the requirements by submitting the steel to a gentle

heat. The variation in hardness is indicated by the color on the surface and when the proper color is reached the steel must be again dipped to prevent it from becoming too soft. In order to distinguish the color accurately the surface should be rubbed bright with emery cloth. Heavy tools can be "drawn" in direct contact with the heat, but fine instruments should be treated through some medium, and for this purpose I use asbestos over gas, gasoline or alcohol flame, the finer the instrument the thicker the medium should be.

The following is about the proper color : For taps and dies and metal-cutting tools, a straw color ; for excavators and burs a straw color, shading to purple ; for rubber chisels and scrapers and wood cutting tools, purple ; for steel springs, blue.

GOLD INLAY.

BY OLIVER MARTIN, OTTAWA, ONT.

A matrix is made with pure gold by burnishing to fit the cavity, the edges being trimmed flush with the walls ; a special alloy of gold is melted into the matrix without investment. The inlay is partly finished before cementing into the cavity and the final polish given after. In large fillings two small pits are drilled into the body of the inlay to permit of its being conveniently held (while trimming) with round pliers having their points bent inwards to a right angle. A blow-pipe flame is used to melt gold alloy into the matrix.

CLINIC WITH THE TETER APPARATUS FOR PRO-LONGED ANESTHESIA WITH N₂O & O.

BY CHAS. K. TETER, CLEVELAND, O.

In my clinics with the Teter nitrous oxide and oxygen apparatus, I wish to demonstrate the superiority of this anesthetic agent when properly administered, over all others, in the practice of dental surgery. There is no safer anesthetic and none more free from distressing after-effects.

Nitrous oxide has been restricted to the narrow field of dentistry and momentary operations, because of the lack of an efficient apparatus for its administration, and also the greater knowledge and skill which are essential on the part of the anesthetist for its proper administration.

Nitrous oxide is a chemical compound and does not decompose

at the body temperature, therefore the organism does not obtain any oxygen from the agent. It can be inhaled pure for a very short period only, as we have the double danger of an asphyxial as well as anesthetic agent.

Nitrous oxide given in connection with definite proportions of oxygen, with a perfected apparatus, can be inhaled for any length of time, consistent with modern surgery, and for any operation.

For work in the oral cavity I use a specially constructed nasal hood, through which this agent is administered. This hood is so constructed that valves may be closed and the anesthetic forced through the nares back into the larynx, in case the patient breathes through the open mouth, and by so doing profound anesthesia may be prolonged to completion of operation.

ADMINISTRATION OF GAS WITH THE JONES' ANESTHETIZER.

By E. C. JONES, WOODSTOCK, ONT.

The Jones' anesthetizer is made in two parts, a nasal and an oral part, each fitted with an adjustable cushion to perfectly fit the features to which they are applied, and an inhaling and exhaling valve, regulated to open or close by a simple adjuster. The two parts of the anesthetizer are connected to an air regulator and mixer by rubber tubes, the mixer being adjustable so as to be used without removing the anesthetizer in giving any other anesthetic; to the mixer may be attached any anesthetic-supplying apparatus which the operator desires. This anesthetizer fits the features better, is more perfectly regulated throughout, and overcomes the difficulties met with in using those now on the markets, better than any other anesthetic appliance. Preparation for the manufacture and sale of these anesthetizers is now being made by Edwin C. Jones, the inventor and patentee.

MANIPULATION OF NON-COHESIVE GOLD.

By R. E. SPARKS, KINGSTON, ONT.

This demonstration is calculated to show the preparation of non-cohesive foil for filling teeth, the method of packing into cavities and its advantages over other forms of gold for certain cavities or parts of cavities. The ease with which it may be

adapted to the walls of a cavity makes it desirable for filling small cavities, or starting large fillings, where cohesive gold is liable to weld upon itself, curl up, or bridge over retaining grooves or pits. It may be used in the form of strip, roll, pellet or cylinder.

I prefer the former, made of $\frac{1}{3}$ to $\frac{1}{2}$ sheet No. 5 corrugated foil. Hand-pressure instruments used, about as large as the cavity will admit of, condensing with finer points either by hand-pressure or mallet force.

J. G. ROBERTS, of Brampton, inserted a gold filling in the grinding surface of an upper first molar. Among the principal points observed were the speedy preparation of the cavity and the rapid manipulation of the filling. The Doctor did not use rubber dam.

Selections

WORDS IMPROPERLY USED BY DENTISTS CONSIDERED FROM AN ETHICAL POINT OF VIEW.

By W. C. GOWAN, D.D.S.

Mr. President and Gentlemen of the Ontario Dental Society, —It gives me pleasure to address you on this occasion. To deal with professional ethics at your request is an honor I appreciate, yet I shall not attempt exhaustive treatment of the subject, but rather present for your consideration a few matters of ethical importance which, I think, have hitherto been neglected in the deliberations of this society. I refer to the words and phrases improperly used in the professional conversation of dentists, and the evil results of their use; the boasting of money made, of long hours spent in office work, and of things done in practice, which are not to our credit or worthy of our pride. I would remind some of our brethren that the differences between an ethical dentist and a quack are marked by signs other than newspaper advertising, and that these signs are seen even by people who are not dentists. I would suggest that we cease to give names to our operations in the hearing of patients, as to them names are, in my opinion, not only unnecessary, but also harmful. Names, especially short and bad names, are the support of the quack, and the basis of unprofessional competition and advertising.

My purpose is not to criticise merely, but rather to help in advancing the dignity, honor and usefulness of the dental profession, by correcting the faults in language and the unprofessional methods that injure us in the estimation of educated people, and mislead instead of instructing the public, in important matters of dentistry.

I believe all dentists distinguished for education are agreed in the premises that dentistry is a learned profession, and not a trade. To justify public agreement in this conclusion, we must speak as professional men and not as tradesmen. We must remember that a dentist deals with conditions and persons, and not with things, and succeeds by the use of highly specialized knowledge and skill, and not by the sale of goods. That his work is as honorable and as worthy of respect as that of any other profession should be manifest to all by his dealings, attitude, and words. The amount of his fee varies as his education, position, reputation, and circumstances, and should be propor-

tional to the difficulty, danger, extent, importance, and success of his operation, and this all patients should be made to understand.

Since the character of dentists as a class is judged by the words and actions of the individual dentist, let us avoid a misuse of words, excusable only in the illiterate, for we are estimated professionally and socially by the evidence of culture or the lack of culture which our actions and words present, and no claim or argument will alter this evidence. What we do and say to patients is public instruction in dentistry, and upon that instruction our welfare largely depends. That the aim and moral duty of a dentist is to prevent or relieve suffering, pain, injury, disease, or loss of the organs committed to his care, and that his ability to do this depends upon his education, should be made clear to every patient and the general public; and also that he has no merchandise to sell, does not "oppose" his fellow practitioners, nor so speak of his work to patients that they may regard him as a mere maker and seller of fillings and artificial substitutes for teeth. If these propositions are true, then what view of the dignity and character of his calling, what taste, education, or common sense, does a dentist display in using the words, "price," "opposition," "customer," "business," "guarantee," "patronage," "contract," "order," "bargain," "job," "trade," "prices for fillings," "plates," "crowns," etc., "cut prices," "quote prices"? Let us examine these words singly, and their meaning to the mind of a patient or the public.

Price.—Price is used in commerce or trade in reference to things bought or sold, merchandise, property, stocks, bonds, securities, etc., and has no place in conversation between dentist and patient. Filings, artificial crowns, dentures, etc., are not things for sale or at a price. They are merely accessories used in the exercise of a dentist's professional judgment and skill for the benefit of his patient, for which his reward in money is a "fee."

Opposition.—The use of this word, instead of fellow-practitioner or confrere, is most objectionable, and impairs public respect for us. Even tradesmen refuse to use it in reference to their competitors. We oppose only that which is wrong or bad, or undesirable.

Customer.—We have no customers.

Business is a broad general term covering any kind of work, transaction, occupation, or duty. It should not be used instead of the word "practice." The business of a dentist is to learn, practise and teach dentistry, and be otherwise a good citizen. His daily work is his practice. It is also the business of a dentist to take heed how he represents dentistry to the laity, whether as a trade in which quacks can compete, or as a profession in which they cannot serve.

Guarantee—Contract.—These words have a legal signifi-

cance and apply properly to transactions which involve materials, labor, and things that are quite within the control of the parties interested, or between persons, as the marriage contract or guarantee of wages. These also are within the control of the persons who make them. But a dentist cannot judiciously guarantee anything he does, except it be that a tooth extracted will not return to its place in the denture; and if he enter into a contract, after the manner of tradesmen, he not only exposes himself to unpleasant liabilities legally, but he also takes chances against conditions he may be unable to foresee, and persons he may be unable to control. Besides, a court will hold him to a guarantee or contract, however injudiciously made.

Patron—Patronize—Patronage.—Don't use these words unless you expect people to seek your services, not because they need or desire them, but only to give you encouragement, countenance, or money. A patient should be presumed to consult her own interests in her choice of a dentist.

Order.—Since we perceive by means of highly specialized knowledge the needs of our patients, it follows that our judgment in most, if not all, cases, should prevail. Hence, to obey or permit orders from patients, generally, is absurd and wrong. It may sometimes be unlawful also.

Trade.—To use this word in reference to our practice is to deny all the propositions before set forth. He who uses it denies his professional status and dignity altogether, and teaches the public to do the same. The attempt to make dentistry a trade is quackery or folly.

Job means "a petty piece of work undertaken for a specified price." Job is worse than trade. Job suggests, "To half-soling shoe, 50 cents." "To hair cut, 15 cents." "To hinge on gate, 30 cents."

Bargain has no place in our vocabulary. If for the sake of charity, or for any other reason, you are willing to accept less than a sufficient fee, let it be so understood, that you may have the patient's gratitude. Don't say bargain, unless you want the public to think you a common trader who sells things.

Prices for Fillings, Etc.—Cut Prices—Quote Prices.—This phraseology is wholly wrong in principle, word, and idea, damaging to ourselves, and misleading to the public. Nor is it bettered by substituting fee for price, for cavities so differ in position, extent, difficulty, complication, and expense of time, energy, and skill in dealing with them that we could not quote a just scale of fees for "filling" them, even if we should choose to ignore the principle that we charge for professional services and not for fillings. To base our charge on time only, is no better. To charge for the operation as a professional service rendered is our only proper course, whatever the amount may be. It is therefore clear that he who practises dentistry professionally can quote neither prices nor fees, no more than

can the physician. Each practitioner expresses the value of his services by the fees charged, and whoever charges less than his confreres, circumstances being equal, acknowledges himself inferior to them. Whoever says or acknowledges cut prices in reference to himself or his confreres, invites public contempt for dentists and dentistry, and makes easy the way of the quack. To use this phrase is to acknowledge the competition of the quack and help him before the public.

"Replate or reset teeth," "put up a set," "take the impression," "permanent plate," "kill the nerve," "cap the nerve," "cap the tooth," "crown the tooth," "freeze the gum," "cure a gum boil"—these expressions have cost us money and respect, and have sent more people to the charlatan than all the advertisements ever printed. To say that you will "replate a set of teeth," when, in fact, you intend to construct an artificial denture, using teeth from an old or broken one, is to cheat and belittle yourself, and to mislead your patient. The very word *replate* is short and common-place, and leads the patient to estimate the operation as a trivial matter of transferring teeth from an old plate to a new one, for which very little money should be paid.

"*Put you up a set,*" is no better, and "*take the impression*" is used by the dentist and repeated by the public as if nothing else but an impression were necessary, and that from it a full denture is cast, like a bullet from moulds. Name all the steps or none, and don't thus mislead people to your own disadvantage.

Permanent Plate.—This is open to serious objection, for the continual change, due to absorption of the alveolar process when the teeth are lost, makes a permanently fitting denture impossible. Cut permanent out altogether. Its use misleads the patient. Artificial denture or artificial teeth should suffice.

Kill the Nerve.—There is no expression among all the bad ones so improper, undignified, and badly descriptive of the operation as this one. To call the pulp of a tooth "the nerve" is to display ignorance of which a dentist ought to be ashamed; and to say "kill," when you mean "devitalize," or "destroy," is as vulgar as "rip the belly," if used by the surgeon respecting an abdominal section. "Kill" and "rip" are quite proper for butchers, but not advisable for doctors. Housekeepers kill rats and mice with a few cents' worth of poison, and little or no anxiety or skill. If a dentist devitalize the pulp of a molar with arsenic, remove it, and fill the roots in aseptic condition, in three sittings, and call his operation "killing the nerve," his patient will estimate and pay him about as she does her washer-woman for the work of as many hours. It is no wonder so many patients think there should be little paid for an operation called by such a name. "Destroy and remove the pulp and fill the roots," is surely not too long a statement.

The same reasoning applies to "cap the nerve," "cap the

tooth," "freeze the gum," "cure a gum boil," or "crown the tooth." These expressions are alike in their improper, undignified, and undescriptive brevity. They set forth the operations for which they stand as common-place tricks of a trade, just the things for which a quack can "quote prices," and worthy of little money or respect, like the man who uses them. When you describe or speak of your operation to your patient, use a few minutes of your time to describe it properly, and don't allow anyone to use these expressions in your hearing without immediate correction. If people were instructed by their local dentist concerning the cleanliness, knowledge, skill, honesty, and care which are necessary in a successful operation, they would never go to a quack. To so instruct the people, care in our words and respect for our operations and ourselves are necessary. If you don't want to help quacks, don't give short, undescriptive names to your operations. Don't itemize fillings, crowns, extractions, cleaning teeth, devitalizing pulp, etc., with a definite charge for each item, for your patients, but make judicious use of the words "professional service" (in rendering account), "operation," "treatment," "dressing," "prevent infection," "relieve pain," "remove the cause," "prevent caries," "management," "restore," "repair." Use such words as these in their proper sense. They make clear to the patient that professional skill is necessary, and you need not fear that a quack will adopt them. He can't use them in advertising or "price cutting."

Repair means to restore to a good, whole, or sound state after injury, dilapidation or decay, to mend, to renovate. No word is more useful or better understood by all people. It has a comprehensive meaning, and is, I venture to think, more appropriate, descriptive, clear, and elegant than "fill," "plug," "crown," or "cap." No display of technical language is necessary or advisable if you use common sense in choosing words. But don't choose these words: "Silver," "composition," "porcelain fillings," "Justi's or White's teeth," "best sets," "examination free," "treatment free," "extracting free," "use cocaine." This is decidedly unethical language. If you must name the material with which you fill, why not honestly say "amalgam" and "cement"? And why should you make trouble for yourself and all of us, by advertising among your patients the name or product of any manufacturer of dental goods? When you say "best set," you imply that the only difference between one artificial denture and another is the cost or quality of the teeth. To declare your examination free is to declare your professional knowledge and opinion worth nothing, like that of the oculist in the jewellery store. "Treatment free" is in the same class. "Extraction free" implies that you are glad to see teeth lost, and are doing all you can to encourage

extraction. It also shows that the operation costs nothing, is of no importance; that a dentist will extract for fun.

Cocaine is a seductive and dangerous narcotic; therefore do not name it, or let your patient know you are using it. By this course you will avoid not only unpleasant symptoms aroused in the patient by fear, but also the possibility of initiating the cocaine habit. The same applies to morphia.

In another class we have "ulcerated tooth," "dead tooth," "rotten tooth," "hollow tooth," "hole in a tooth," "matured at the root," "false sets," "dose of gas," "pull," "yank," "draw," "scrape out," "stump," "fang," "snag," "doc."

An alveolar abscess is not an ulcer, nor is it a disease of the tooth. It is a disease of the tissues outside and beyond the tooth, caused by infection from apical foramen. A pulless tooth is not necessarily a dead tooth. A dead or rotten tooth would soon be cast off by the living tissues. All normal human teeth are hollow, and to say "hole in a tooth," when you mean carious cavity, is to be inaccurate, as well as vulgar, for all holes in teeth are not carious cavities. People can learn the meaning of caries as easily as they learn the meaning of measles, small-pox, or appendicitis, and a lesson from the dentist in this would be worth more than a crown. The next three phrases need no discussion. But a dental surgeon who can properly extract a tooth knows that neither a pull, a yank, nor a draw will accomplish this purpose; and he who can properly clean teeth will not say "scrape," nor will he say "stump," "fang," "snag," or "doc."

"Complaint is the largest tribute heaven receives and the sincerest part of our devotion." Yet I must complain again that this language is unfit for students of science. Are "price," "opposition," and "kill the nerve" words becoming a doctor of dental surgery, a teacher of the people? Are these words an expression of that exalted view of dentistry which we should entertain? Do any of the words I have criticised express or even suggest the nobility or the dignity of a worthy dentist's ambition? Do they suggest that a dentist hopes and labors for rewards other than mere dollars and cents? Are they marks of culture by which the social interests of the dentist are advanced? Are they even suggestive of accomplishments worthy of a respectable fee? Our words should suggest these things.

To those who are not fond of reasoning, but prefer specific advice, I would say: Boast of the money you make. In towns say \$4,000 to \$6,000, in cities \$10,000 to \$20,000 a year. Boast that you work in your office every night till ten o'clock, also Sundays, and that you do a great deal of crown and bridge-work—in fact, that you make "a specialty" of it. The first boast will arouse the envy of your neighbors; make them suspect dentists of greed and extortion, and pay your fees unwillingly, It will also induce young men who want to get money quickly

to study dentistry. Your second boast will show that you are a grovelling tradesman, who has no time or desire to read, no interest in education for the duties of a good citizen, that you care for nothing but money, are not a professional man, and ought to be called "doc." Your third boast will make it probable that you know little and care less about conservative dentistry, being more interested in the sale of crowns and bridges than in rendering them unnecessary. Hence you are not to be trusted with the care of children's teeth. Fit up your laboratory with two-horse-power motor, big plate rolls, all the porcelain furnaces made, and other machinery. Hire three men. Say you introduced crown and bridge-work and continuous gum-work in Canada; that you do this work for other dentists. Show people your laboratory. They will think dentistry can be done in a mill by divided labor and machinery; that you are a pretentious extortioner, boasting now of your crowns and bridges, whereas a few years ago you boasted of the teeth you pulled, and the sets you made, and that you make not honored the name of dentist. Always speak of your fellow-practitioner in town as "my opposition." Talk about your prices, guarantee your work, invite patronage, give bargains, do jobs, make contracts, replate teeth, kill nerves, charge for gold fillings by the leaf; give names to all your operations. Say "false teeth don't ache," and if there is an ethical dentist near you, say, "His prices are too high." This will lead people to various conclusions; whereof one will be that you and the quack are equal in language and method, even if you don't "advertise," the choice between you being a matter of dollars and cents only. Another will be that dentists are a body of illiterate mechanics, who ought to be treated accordingly.

Never read dental journals or any literature, excepting price lists of teeth, rubber, gold, etc. Don't take a post-graduate course or otherwise learn to make an artificial denture worth more than \$8.00, a filling operation worth more than 75 cents, management of alveolar abscess, therapeutics, root-filling, or any such thing. Be candid, and tell dental students that money is what you seek first, last and always. If your father is a talkative man, and not a dentist, invite him to your office, show him all the brass crowns and bridges you made (or bought) at college, and tell him they are for your patients next day at \$10 per tooth. Your wife will do if your father can't come. In rendering account, don't mention professional services, but specify each item separately by name, and at a price, as blacksmiths and plumbers do. This will show how you compare with the "real painless," besides teaching people that the work of a dentist is mere trade.

Before closing, I would ask: "Is crown and bridge-work the achievement of which a dentist ought to boast, and by boasting teach the people to expect it as a panacea? "teeth without

plates!" With all the recent increase in scientific knowledge and improvements in education and methods, can a dentist do nothing more worthy of special mention and pride? Would it not be more becoming in us and instructive to the public to boast that for young people who secure our services in time, no crowns or bridges will be necessary? Or to faithfully do something to justify the words of Oliver Wendell Holmes, when he said: "The dental profession has established and prolonged the reign of beauty. It has taken from old age its most unwelcome feature and rendered enjoyable human life far beyond the limit of the years when the purblind patriarch might well exclaim, 'I have no pleasure in them.' "

It seems that commendable ambition and a sense of beauty, truth, and dignity must be developed in a man before he will prefer the language, manner, and style of dealing deemed professional. But surely it is not too much or too soon to ask that the grosser errors be avoided even for the sake of our social and financial interests, for unless the majority do this, the name of dentist will not be deemed a guarantee of learning, culture, good taste or professional character. Improvement is progressing however, and if I assist in it even a little, I shall not have written in vain.

In this work I thankfully acknowledge the kind assistance of Drs. Brophy, Black, Hanna, Johnson, Moyer, Webster, Pearson, Cross, and many others.—*Dominion Dental Journal.*

NEW METHOD OF FORMING THE MATRIX FOR INLAYS.

By C. C. ALLEN, KANSAS CITY, Mo.

In making a gold or platinum foil matrix, great difficulty is often experienced in removing the matrix from the cavity without distortion. Often if an approximal matrix has been formed, it requires the greatest care and most skillful manipulation to get it from the mouth into an investment without some change of shape. It has been suggested that, in order to facilitate the forming and removing of a matrix, it be previously filled with some material solid enough that it may be handled.

Many substances have been tried for this, but the difficulty has always been to remove the material without in some way damaging the matrix. Some of these materials can be removed by melting, burning, washing, etc., but at the expense of a good deal of time and annoyance. Wax or gutta-percha leaves an ash or deposit or some trace of their occupancy behind them. This is of course undesirable, as the minutest trace of alien matter

will frequently ruin the finished inlay by causing discoloration, bubbles, etc. After trying all of the materials heretofore used that have been brought to my notice, I began experimenting with gum camphor, the ordinary article procurable at the drug store. I find that this can be packed into the matrix and greatly facilitates forming it, as it has the desirable flow and packs very hard, thus actually swaging the matrix to all cavity walls and enabling you to burnish down the edges until they are smooth and perfectly adapted to the tooth.

One can finish and rub the edges of the matrix of either gold or platinum foil, until he is satisfied that the fit is perfect, without any fear of drawing away at any point.

Very little manipulation with spunk, cotton or bibulous paper is necessary before resorting to camphor. A small lump of camphor can be placed in the cavity and burnished down with a hard pressure, and the result will be surprisingly gratifying. If the matrix is difficult of removal, sharp instruments, such as an explorer, may be inserted in the body of the camphor, and the matrix, camphor and all, with a little care, be removed from a location where it would be impossible to get a matrix out without distortion unless it was filled. The camphor, when properly placed, comes out hard enough to stand all the handling necessary. After the matrix is removed, you can proceed to invest in asbestos or any compound used for that purpose without fear of disturbing the shape of your matrix. But now comes the best part of the whole scheme; if you are investing, using alcohol, all you have to do is to touch a match to the investment, and by the time the alcohol is burnt up, the camphor will have absolutely disappeared, leaving a perfectly clean matrix with no trace of ash or any residue remaining. This is, of course, the very thing we want. You now go ahead with your work with the assurance that it will be clean. Alcohol is not necessary to the removal of the camphor, as it will burn up without its aid if you should invest with a mixture using water.

In case the camphor has been somewhat contaminated with blood from the gum in making, the whole body of the camphor may be removed, blood and all, after soaking a few moments in alcohol. In this case, that procedure is better than burning.

With this method pins or staples may be used in your matrix and the camphor packed hard enough around them so that they may be removed and invested at once without any fear of displacement. In fact, camphor lends itself almost perfectly to many uses in inlay and porcelain-work. Pins may be held in position in making the platinum base for molar crowns in this manner, etc. The camphor has no unpleasant qualities to interfere with using it in the mouth.

A little experience will enable one to fill out approximate contours with the camphor, which, even after they have been removed, will prove serviceable in guiding the eye to contour-work.—*Western Dental Journal*.

Proceedings of Dental Societies

ANNUAL MEETING OF THE ONTARIO DENTAL SOCIETY, MARCH 13, 14, AND 15, 1905.

Dr. McLean moved, seconded by Dr. Spaulding, that the president deliver his address, which, on a vote having been taken, was declared carried.

At the request of the president Dr. Sparks took the chair.

THE PRESIDENT.—Permit me to say, gentlemen, in attempting to read this paper I am reminded of a story I heard some time ago of a young preacher who, at one of his services, discovered he had a member of the United States Senate in the audience. He was a little excited at first, somewhat pleased and flattered. After the service he was very anxious to get an expression from the United States Senator. He fished for a compliment for a good while, but the Senator was as dumb as an oyster. The young man thought he had offended in some way, so he came right to the point and said, "Senator, I trust I did not offend you with the length of my sermon." The Senator looked him over from heels to head, and he said, "No, you didn't offend me with the length of your sermon, nor with the depth of it either." (Laughter.)

Now, I promise you that my address will not be of very great length, and it will be for you to say whether there is much depth to it or not. (For address see page 117.)

DR. SPARKS.—Gentlemen, you have heard the president's address. If there are any points which any of the members would like to discuss we will discuss them now.

DR. TROTTER.—Mr. President and gentlemen, I do not think Dr. Thornton is making a fair comparison in comparing dentists with other professional men. He has taken, to my mind, the lowest standard of fees for dentistry and compared it with the highest standard of fees for lawyers and physicians. There are fillings that are put in for fifty and seventy-five cents, but there are also just as large a number, perhaps more, that are put in for seven and eight dollars. On the other hand, he is taking a lawyer's fees at \$100.00 or \$1,000.00 per day, whereas there are lots of lawyers working for three or four dollars a day. It does not seem to me that the comparison is at all fair in regard to the comparison of fees. I think the dentist to-day is occupying just about as high a position in the opinion of the public as the lower grade of lawyers or physicians, which is a much fairer way to make the comparison.

Dr. KLOTZ.—Why should a dentist take rank with the lower grades in any profession? There is a great deal of truth in that paper. I hope to see the day when dentists will be recognized better and will be better remunerated for their services.

Dr. Sparks left the chair and the president resumed it.

THE PRESIDENT.—There is nothing for me to reply to. I

think the only question raised has been very ably answered by Dr. Klotz. I am not satisfied as a dentist to take rank with the lowest men in any other profession. The point I wanted to make was that we do not, and have not, received the recognition that other average men in other professions have received. If you think you have, why, if it pleases you it does not hurt me; but that is my opinion, and the fact remains that we have not had the recognition from our fellow-men, as far as the honors which citizens crave are concerned, and just why I am not going to urge upon you any further. But I am in this position, that in conversation with the students of my class in regard to the subject which I teach, I have discovered that, while it is true as Dr. Trotter says, that many men, especially in the large cities, get fairly good fees, that the rank and file of the men of this province are putting in amalgam fillings for fifty and seventy five cents, and one of the students told me that his preceptor treated a pulpless tooth and put in the filling for fifty cents. That is not an uncommon thing. So I say until we are able to make more money we cannot take the position. It is money that makes the mare go in this country at the present time. (Applause.)

DR. WEBSTER.—I think Dr. Johnson would like to say a word on this subject. (Applause.)

DR. JOHNSTON.—Mr. President, I had not intended to say anything upon this subject, because in all conscience I have appeared before you enough to-day; but there is one factor that has been overlooked in regard to the attitude of the public towards dentistry and the recognition of the position dentists should assume. The question of fees is an important one, but it is not all. In order to command dignity you must be of a certain age. Dentistry should not be compared with law, with medicine or theology in that respect. Dentistry is infinitely younger than all of them and those professions have taken ages to demand from the public the recognition they receive to-day, and I am not unhopeful, Mr. President, of the future recognition of dentistry when I look at the young faces before me at every dental society and see the character of the young men coming into the profession. I have faith in the fact that these men, after they have come to the years of maturity and after they have made a record in dentistry, the same as law and medicine has been made a record of by its members, I haven't any fear of the attitude of the public towards the dental profession. We must have a little patience. It takes time to develop these things. It is only within recent years we have demanded of the men that come into the profession a requisite amount of basal learning to entitle them to the position they should occupy before the public. There was a time when we did not demand that, but that is rapidly passing away. We are demanding that now and, as I said, I have not much fear of the future of dentistry. I do want to commend one thing in the president's address, that every man who puts brain and ability into the performance of a dental operation should demand a requisite fee for that service. (Applause.) On the other hand, of course, for some patients he should do work almost for nothing. If we look at the amount of charitable work

done by the medical profession and then compare that with the amount of work we do in charity you will find there is not very much comparison. I know men of vast ability in medicine who devote a great deal of their energy to charitable work and we as dentists should do that too ; but, on the other hand, when we have patrons who can afford to pay us good fees we should demand them. Above everything else, we should never haggle with a patient about a fee ; never discuss except to explain certain fundamentals. If there is anything I abominate it is arguing over a fee. That is where we belittle ourselves. Even the discussion of those things with patients is degrading in itself and unprofessional. A man should have a basis of fees and should stand by that basis of fees. If he wants to do charity let him do it, but do not discuss fees with patients that come into the office. That is the thing that lowers the dignity of the profession. (Applause.)

THE PRESIDENT.—There is a class of persons in the room that I am very glad to see. I had a communication from Dr. Hume in regard to the students of the senior year, and I think there are some men in the room who wish to make a motion in regard to the position which the students should occupy in connection with this Association and if so we will just wait for a moment now. I think Dr. Piper, of London, will make that motion.

DR. PIPER.—Mr. President and gentlemen, the motion that I wish to make is that the senior students be admitted as members in this Society without reference to the dollar a year fee. (Applause.)

DR. CAESAR.—What about all the other students ? When they graduate then we will soak them.

DR. PIPER.—I understood it would be a question of room. If there is sufficient room for all the students to appear at our Convocations I have no objection to including them. However, I speak particularly for the third year men.

THE PRESIDENT.—You will understand the room is limited. I want to say when Dr. Hume wrote to me I replied it had been my thought for years that all the senior year men should have the privilege of these annual meetings. So far as the other students are concerned there would be things discussed here that perhaps not be very interesting to them ; but the senior year men should have all the advantages and this additional advantage of becoming members of the Association in their final year. We are then pretty sure to have them at all the annual meetings after that.

It was suggested that possibly the privilege of voting should be confined to graduates.

DR. PIPER.—I would include that in the motion.

DR. KLOTZ.—May I ask what these privileges are these students are to have? If I am not mistaken formerly we travelled around the country with our meeting so that each part of the Province could have a meeting. After this College was finished and equipped it was arranged that the meetings should be held here continually in Toronto for the benefit of the students in order that they might hear and listen to the discussions. I would like to know what more they want?

THE PRESIDENT.—Dr. Klotz, let me make this statement, that the students heretofore have not felt they had that privilege. This is simply to make them feel perfectly easy and give them a standing which they have not felt they had before.

DR. KLOTZ—I am strictly against that resolution. I am in favor of allowing students to come in and listen, but I do not think it is any benefit to the Society that they should be members before they have graduated. Let the students be permitted to attend all the discussions; that is the reason we are meeting here every year instead of travelling through the country.

THE PRESIDENT.—That is the same thing. It is a distinction without a difference, that they have all the privileges of coming in here.

DR. TROTTER.—What is the idea in regard to the clinics? I have always understood that the objection was owing to the fact that there was not room in the clinic room.

DR. WEBSTER.—So far as I understand the students have always had the privilege of the sessions with the exception of the clinics, and this resolution means that the students will be accepted into all of the sessions of the Society, including the clinics, making them members of the Society as regularly as any of the graduates are. Any person may attend the Society that pleases. Another point, I should then judge this will require a change of the constitution, and the mover should make it a notice of motion so that at the next session we can confirm it and make it a part of the constitution.

THE PRESIDENT.—The only object in the minds of those, I understand, who discussed it, and I believe of Dr. Hume, was that it was possible that advantage would come to the students in their final year, preparatory to going out for their life work. Are you satisfied to make it a notice of motion?

DR. PIPER.—Yes.

THE PRESIDENT.—The first item for this evening is "Sensitive Dentine," by Dr. F. T. Coghlan, of Guelph. (See page 119.)

THE PRESIDENT.—I will ask Dr. John Robertson, of Ottawa, to open the discussion on this paper. (Applause.)

DR. ROBERTSON.—Mr. President and gentlemen: I must apologize for the huskiness in my voice, which is not my own fault. As you know I come from that sheltered valley in which the city of Ottawa is situated, and in coming to Toronto I find that the weather is very cold and it has affected my voice. If I am not understood you will please attribute it to the weather. (See page 121.)

THE PRESIDENT.—I will ask Dr. E. Cunningham, of Parry Sound, to continue the discussion on this paper.

DR. W. E. WILLMOTT.—I am not Dr. Cunningham, but he left his discussion with me to read (see page 123).

THE PRESIDENT.—Now, gentlemen, the paper is open for your discussion. I am not going to take any part in it, simply to say this, that a couple of weeks ago I had the pleasure of attending a meeting in Buffalo and Dr. Wedelstadt, of St. Paul, was there, and he told us of a dentist in New York who, when a patient

came and he was in that condition that he did not feel like working, he told the patient he didn't feel like working to-day and he said, "You can go home." It might not work very satisfactorily with all of us. I was in a dental office when a student and a patient came in to the late Dr. Lennox; he was giving that patient gas, and just after taking three or four inhalations the patient jumped up and left the chair, and the doctor said, "What the devil did you come in here for if you don't want to take gas? Go home." (Laughter.)

DR. McDONAGH.—I was exceedingly pleased at the paper. It is very instructive and very gratifying to have such a paper delivered to us, also the papers in discussion. There are one or two points in the treatment of those patients which I would like to touch upon. I believe the time has now arrived when it is not necessary to inflict pain at all upon our patients. I believe the time has passed when the epithet will be applied to any of us that we are brutes. In the last two or three years progress has been made very materially in the overcoming of sensitive dentine. For a time I had great faith in chloride of ethyl and I felt assured that would take the sensitiveness out of any buccal cavity; but the application is not well understood and in the hands of a man who is not used to chloride of ethyl it sometimes may not be successful. However, at the present time I am glad to say that there is another remedy when used properly which is far ahead of chloride of ethyl or carbolic acid and heat, or any of the other remedies I have ever had the pleasure or misfortune of using, and that is *pressure anesthesia*, using cocaine under pressure—using a proper syringe and applying cocaine under pressure into the dentine of the tooth. Properly used you can in one minute and a half destroy all the sensitiveness of the tooth, and without any bad results if you are careful. For instance, if you have a buccal cavity in a molar which is so sensitive that you cannot touch it with an instrument, if you apply cocaine under pressure anesthesia on the occlusial surface, in one and one-half minutes you will have your buccal cavity so devoid of sensation that there will be no more pain than in drilling a board—that is the way your patient will very often describe it to you—you might as well be drilling in a board as in that tooth. That seems like a fairy tale, and I have often thought I would never live to see the day that sensitive dentine could be so thoroughly overcome, but to-day it is a fact. Of course, in pressure anesthesia if we carry it to excess we will devitalize the pulp or we will desensitize it so much that it will be a long time recovering. I have no hesitation in saying that we can devitalize the pulp through a cavity in a tooth which is not any deeper than a thirty-second of an inch. That is such a grand help to us in our work; it helps us so thoroughly and so often that I could not refrain from speaking of my knowledge on the subject.

DR. EARP-THOMAS.—Mr. President and gentlemen, I have felt for the last two years' practice that a very, very useful substance indeed to be used in the case of sensitive dentine is celluloid. It may be dissolved in acetone. If the cavity is thoroughly dried with

alcohol and heat and a dam put on, and the celluloid solution well plastered in the cavity and thoroughly dried with heat, you will find that in about a minute all the sensitiveness of the dentine is minimized in most cases. In fact, I have only found, I think, about one case in twenty in which you have any pain at all.

DR. HASSARD.—Another thing I noticed in a magazine that probably all the dental profession take, *The Cosmos*, was the treatment of sensitive dentine by using a ten per cent. solution of cocaine on cotton thread, that is for the six anterior teeth. I noticed it, and being up against a case that I had considerable trouble with I tried it a few days ago and found it worked very successfully. I took a cotton thread and soaked it in a ten per cent. solution of cocaine and inserted it and let it stand for probably about three minutes and then went on to operate, and I found the pain was decidedly lessened and the patient made no complaint of my going ahead and preparing the cavity for a gold filling.

DR. W. E. WILLMOTT.—There is one thing that has not been mentioned that I have tried considerably, and that is, hot nitrous-oxide gas. Has any one had any experience with this syringe? I don't know whether the doctor intended to demonstrate it as an anesthetic or locally. Some years ago the late Dr. Lennox put on the market an apparatus for applying hot nitrous-oxide. I used it very frequently. It is a blow pipe prepared with a spiral tube in it, and you heat the tube and pass the nitrous-oxide out of the cylinder and you can apply it to the tooth as hot as you please. I had the pleasure of working for one of the city dentists a short time ago putting on a crown for him; I had to cut off a perfectly sound central. I tried everything that the book suggested, and there was nothing that would relieve the pain until I tried this hot nitrous-oxide, and after three applications I cut right through the tooth without any sensation whatever.

THE PRESIDENT.—Dr. Willmott has asked for anybody who has had any experience with Dr. Meyers' syringe. I think that is the one you refer to, doctor. There was one shown here at the Canadian Dental Association ; it is a double-acting syringe.

DR. McDONAGH.—I do not like to mention anyone's syringe. I have used Dr. Meyers' and Wheeler's, and I have used the Davis syringe. I have not had much experience with the Davis syringe ; I don't know whether it is successful or not. The Wheeler is a pistol syringe. I have had more success with it than any others ; but the Meyers' syringe is a first-class syringe.

DR. SWAN.—I can corroborate what Dr. McDonagh says with regard to the Meyers' syringe. I have used it quite frequently and find it answers the purpose fairly well. I have used it on buccal cavities and molars where to wipe the cavity even with cotton was extremely painful, and by making a small pit in the crown surface I have seen I could cut in there as much as I liked without any pain whatever. The same way with buccal cavities in any position. It is not necessary to make the pit in the cavity, but anywhere it is convenient. I have used it also in cutting down molars for caps for bridges. I found it useful in that

too. With one or two applications you can desensitize a molar so that you can take the whole enamel off without any pain whatever. Before we saw the Meyers' demonstration at the Association in the fall I used another method and found it quite efficacious, but I suppose it is rather dangerous; that is, by administering chloroform just to the point where the patient begins to feel a tingling on the tips of the fingers. You can control dentine at that stage by anesthesia quite long enough to prepare a buccal cavity in a molar or any of the anterior teeth. You would want naturally to pick your cases. Possibly you might run up against trouble at some time. There is a special providence watches over children and fools, and probably that is the reason why I have not had any trouble in that respect; but I have found it very efficacious.

DR. TROTTER.—I notice in the paper and in the discussion that nothing has been said in regard to cataphoresis. I have a cataphoric apparatus. The only objection I can find to it is the time it takes to get the results. In speaking of these treatments with the syringe it seems to me that the time lost in drilling another hole in another portion of the tooth, and refilling that again could be consumed just as well and probably with less trouble and alarm to the patient by applying cataphoresis. There is no question but that it does the work all right enough; it is only a question of taking the time. The average cavity will take from twenty to twenty-five minutes to prepare by means of cataphoresis and then you can do practically what you wish to and there is no danger to the pulp.

DR. KLOTZ.—I have my instrument sharp and I use very little else.

DR. SANGSTER.—I find that the pulps may become devitalized through cataphoresis. I have used it myself. I would like to know whether any of the gentlemen have had any trouble of that kind.

DR. TROTTER.—You may cataphorise so far that you would devitalize the tooth, but I think that is a matter for discretion.

DR. MC LAUGHLIN.—We know from our general practice that twenty to twenty-five minutes would be too much time for us to spend in desensitizing a tooth. In recent years the question of the syringe that has been spoken of to-night is the one that is pretty near solving the question. The question Dr. Klotz brought up, I think, is one of prime importance, the question of sharp instruments. We know we have plenty of burrs on the market that are sharp, that cut dentine and cut rapidly, but at the same time they cause a great deal of unnecessary pain and he is a happy man who is not only able to use a burr that will do its work quickly but also cut smoothly. Now, I know what kind of burrs I like to use for that purpose. I know the class of burrs that in my hands, to my mind, will not only cut quickly but smoothly, and the smoother the edge of the burr is the less pain you have. I think you have solved a great deal of the problem when you have got the right kind of burrs.

DR. SWAN.—With regard to burrs, I have found there is a great deal of difference when you use a large and when you use a

small burr. If you use a small burr, as you often can, to produce your result, you get far less pain than you do with using a large burr.

DR. J. B. WILLMOTT.—I would like to call the attention of the society to the suggestion as to using devitalizing vapor. There is no kind of doubt that if we use devitalizing fibre to a sufficient extent that that pulp will die. It is not a question of whether it dies to-day or to-morrow or next week, but it is going to die. The history of that kind of treatment was demonstrated years ago. The late Dr. J. B. White, of Philadelphia, was the first man to use arsenious acid for that purpose. He had a few cases that worried him; the teeth were so sensitive he could not do anything with them, and it occurred to him to destroy the tissues in the tubules by the use of arsenious acid. He made an application of the acid and he found he could actually excavate that cavity without any pain at all and he tried it repeatedly, so that if there was any sensibility which might readily have been borne, rather than submit his patient to it, he put a little arsenic in and sent the patient away till the next morning. In about a year his patients began to come back with abscesses on the roots of the teeth, first one and then another and another, until it became a sort of common occurrence to have a patient come with an abscess on the root of an anterior tooth. It did not occur to him these were cases in which he had put the arsenic in. He did finally suspect there might be some connection and looked at his appointment book and in every solitary case in which these people came back with abscesses it was a case in which he had put in arsenious acid. He had taken a good deal of pains to call to the attention of the profession this revelation in painless dentistry and then when he found this out the responsibility was laid upon them to tell them it was a fraud and to warn them against using arsenic. I think there are very rare cases in which any modern teaching at all would dare to put arsenious acid into the tooth for the purpose of rendering it insensible.

DR. EARP-THOMAS.—Would the acid do in a very shallow cavity?

DR. WILLMOTT.—If it has any dentine at all it will spoil the pulp.

DR. EARP-THOMAS.—The action of the mixture of which I spoke of a few minutes ago is this, the vitals of the teeth have a liquid in them which when the drill is brought in close contact with seems to conduct the sensibility to the nerve and my idea is that it is simply the pressure on the fluid which is driven right to the nerve and which causes irritation to it, causing the pain. With the celluloid, it has a very searching action, it penetrates to some little distance in the tubules and you may drill into it quite a distance as long as you do not pass the solid part of the mixture and no pain will be felt, but immediately on passing it the pain comes back again. I fancy that is the action that the celluloid has on the sensitive dentine.

DR. CÆSAR.—Mr. President and gentlemen, I have listened with a great deal of interest to the previous speakers, and I must

say that my experience has been very much on the same lines as Dr. Klotz. I think that nine out of ten, and I believe there are hundreds of them, of your so-called remedies for sensitive dentine, have about as much effect upon dentine or pulp or sensitive dentine as holy water would have on a graven image. (Laughter.) I have graduated long ago in that line. Get your patient in the chair and inspire that patient with confidence. If you cannot do that you had better let him go at once and send him to someone else that can. Get your sharp instruments all ready, get your rubber dam on, and get some warm air to work in the cavity if it is very sensitive; dry the surface of it and commence a little excavating and if there is trouble get your warm air to work, gradually encroaching on the cavity until your patient begins to resent the burr. Work away with your warm air; have your assistant holding it close by you—compressed air I mean—using a pound of pressure. That is all I ever use with my compressed apparatus, and I find that too much at times. Doing it in that way I will guarantee I will have that cavity prepared before you will get your cataphoric apparatus half ready for business, or your so-called obtundent. I will guarantee that Dr. Johnson has no cataphoresis or obtundent in his office and he will fill the cavity before you can get half ready for that filling, or before you will be ready for the rubber dam. Is there any person in the room who is using compressed air? As I use it I have little or no trouble with sensitive dentine. I heard the paper by Dr. Coghlan. It is not very long ago since I had a patient sent to me, I don't think it was one hundred miles from Guelph, and the gentleman who sent the patient to me said, "He will not hurt you." The patient said, "It can't be done; it can't be done." He happened to be an hotel-keeper and he said he would bet a bottle of champagne on that. I said, "If I am in on the champagne I will try pretty hard." I inquired whether I was likely to be in on this game or not and found I was. I went to work with my warm air. I first got my rough edges all chiselled, washed it out with warm water, put my rubber dam on and got my compressed air to work and there was very little pressure. I picked up my burrs, looked them over, opened a fresh package, dipped one in carbolic acid and I said, "Now, that is antiseptic sure." I commenced drilling away. "Any pain?" "No." By-and-by I noticed that there was a little pain. I didn't say anything. I had my office girl standing there and I just reached out and she handed me the warm air syringe and I went on again with the warm air syringe. I don't suppose that I was more than twenty minutes from the time I put the rubber dam on until the girl was giving the gold to me. I filled both of those incisors, and the patient said without any pain. There was a time when I did use Robinson's remedy. I tried to persuade myself that was a fine thing. I think it is about five years since I lost that bottle and I haven't had one since, thank goodness! and I simply use nothing but hot air. (Laughter.) You have got full control and you are boss of the situation. I think you had better throw these so-called—what do you call them—anesthetics or obtundents away, and throw them to one side. Do you use obtundents, Dr. Johnson?

DR. JOHNSON.—No.

DR. CAESAR.—You have got control of your patient and you tell them you are not going to hurt them, and they believe you; that is where it comes in. With a firm hand boss the situation and work on a dry cavity, and I think you can accomplish almost any operation with very little pain. (Applause.)

DR. COWAN.—I agree with Dr. Caesar in the abandonment of medical aids in the handling of sensitive dentine. I would suggest for the removal of decayed dentine that it be done before the dam is put on, using a stream of lukewarm water—water just at that heat which will not irritate the tooth—and then in not using burrs for the removal of decalcified dentine; in all cases where you can reach it use excavators, and those that are adapted to cutting without pushing or pressing the chip the instrument is cutting. There are those that will cut with a partly rotary motion of the handle. The blades take a motion like the point of a corkscrew and they are ground very thin, and the whole blade of the excavator has a curvature. When you start the sharpened edge of that under the decalcified dentine you will have no other pressure than the forward movement of that edge, which simply separates the decalcified tissue; when that is done you will probably have given the patient as little pain as in any way you have ever tried. The cutting of the vital dentine after the decalcified tissue is removed is another matter. For operating, those spoon excavators that have a flat front or a merely concave front, are not so good as those that have a corkscrew movement. Do not forget the little No. 1 Darby Perry spoon, with which you can pull off decalcified tissue smoothly, and there is no other pressure required, and the chip just moves right out of the cavity ahead of the instrument. For the larger cavities there is in the set to which I refer a larger one. Those are the only suggestions I wish to make.

DR. JOHNSON.—I want to say one word. I do not want the impression to go out that I do not use anything to obtund sensitive dentine. I do want to make the statement that I depend more upon manipulation than upon any other one factor. If we had people all of the same temperament we might suggest certain methods of obtunding sensitive dentine and have that method, whatever we suggested, successful. It is a fact that there is just as great a variation in the temperament of the patients that come to us as there is in the patients themselves, and you cannot handle two people the same and get the same results. Now, a large amount of the relief of pain by the use of these obtundents and these methods is pure and simple psychology. The patient has confidence when you undertake to do something of that kind and you make a feature of that. The patient has the idea that you are going to do something, and that helps, and it helps more than the real efficacy of the drug itself. I will give you an illustration of that. I have a friend in Chicago who tried almost everything along this line—and I do myself, I want to be familiar with almost every agent and every method—and when cataphoresis first came out he had struck the millennium. He had a patient whose teeth were exceedingly sensitive. He sent for that patient to come to the office, and he said, "Now I have got something that I can operate

upon your teeth without any pain," and he used cataphoresis. The patient got out of the chair and remarked, "I never will have my teeth filled in any other way again; I shall never dread dental operations after this." He made another appointment. The next time he came, to the utter dilemma of the dentist, he found that there was no current for his cataphoresis. He stopped a moment, and he pulled out the instrument, put it upon the tooth just the same as ever, not a single bit of current on it, left it on the prescribed time, went on and prepared a cavity exactly as before, and the gentleman got out of the chair and said, "That's a dandy." (Laughter.) It is a matter largely of psychology and going back of all that it is a matter of studying your patient, and knowing what kind of patient it is the moment the patient comes in and takes the chair.

Mr. President, I have been informed I am not an authority on sensitive dentine at all. I was told that by a very dear friend a short time ago. He wrote me from New York, and he said, "My boy, I love you dearly, but you should never talk upon sensitive dentine." (Laughter.) "And this is why," he said, "I have had you operate upon my teeth, and I have had a great many other men, and," he says, "you have no right to say anything against using obtundents because your manipulation is different from the other man." As he expressed it, your touch is a caress to it, and I do not want you to say anything against using obtundents. If that teaches anything it is delicacy of manipulation that does the work. I do not by any means claim not to hurt patients. I have to hurt them sometimes, and sometimes I hurt them for their own good. I have taken patients who had not a bit of backbone or resistance in their whole make-up—young children who could not be controlled by their parents at all, irresponsible in every way, and simply by the discipline of the dental chair and studying them I have made them pretty respectable people. The discipline, if we give it kindly and with good sense makes us absolutely master of the situation. It is a wonderful development to a child. We can do just as much for children as the average medical man or minister can in that one particular. We should do it. I have had patients whose teeth were exceedingly sensitive, and I have had to temporize. Let me give one illustration and I think it will be the key-note to the way I handle most of these cases. One day a very elegantly dressed lady brought her little girl into my office and the tears were streaming down that little child's face. She dragged the child in and she says, "Dr. Johnson, I brought this young one here because I had to; she has kept us awake all the night with the toothache. If you can do anything with that child you can do more than any of the rest of us can." I said, "Madam, have you any shopping to do?" She said, "Yes, why?" I said, "You go and do your shopping and leave the child here." She did so. I put my arms around the child and brought her into the office and I said, "What is the matter? Which tooth is this?" She got up into the chair and I petted that little girl, and talked to her awhile, and said, "This is the tooth that is aching." She said, "Yes." She was getting over her sobbing. I touched that

tooth gently, and said, "I may have to hurt a little bit to cure this." She braced herself in the chair and I did not have to hurt her, and I relieved that toothache for her. That mother came back and the little girl was running around as cheerful and happy as could be. I made an appointment with her and said, "Now, you send Helen down at such a time." The little girl came into the office laughing the next time. The mother said to me, "I don't know what you have done to that child; you are the first one that has ever controlled that child." I said, "It is the most pathetic thing to me that you, as a mother, do not know your own child." I said, "You do not study your child; you do not deserve a nice little girl like that." The sequel to that was this, in two or three sittings that child would sit in my chair—her teeth had gone to destruction in the most appalling manner—that little thing would sit in my chair and, if necessary, allow the tears to run down her cheeks without a murmur, and hide those tears from me on account of the pride she had. Do you think I ever had any trouble with her with sensitive dentine after that? It is painful to have cavities prepared sometimes, but if we get at the patient in the right way the pain is never unbearable, and we can make it more bearable by delicacy of manipulation, by kindness, and by studying our patients. We do not have to go to the extent of hypnotism, but studying the patient and having control over them and giving them confidence. That little girl is a young married woman to-day, and I believe that she is a better woman in every way on account of the fact that she was brought to the dentist.

DR. CAESAR.—I am sorry to take up your time for a moment again. Dr. Johnson just made a remark which brought me to my feet. I had just such a case as he speaks about, a child about nine years old, four molars with large cavities and the remaining deciduous teeth were pretty much all decayed. The mother brought the child down, could do nothing with her at all, could not get her into the chair. Then the grandmother brought her, and the grandmother and the family physician came, and then the father came prepared to thrash the child, and eventually I persuaded the mother to leave the child there. I said "Go and do your shopping." That lady went right away in her carriage and left the child there and I went on talking, coaxing, not coercing the child, and I found out that the nurse was at the bottom of all this. She had been telling her what horrid men dentists were, that she had had a tooth filled, and he simply cut her to the roots of her hair. That was about the way it was put. What was the outcome? Before the mother got back again I had one of those six-year-old molars filled and I had the child walking around the office waiting for the mother. The next time the mother brought that child back I filled another. I would not fill but one at a time, and I did not fill them with gold; I filled these teeth with oxyphosphate of zinc, thinking that probably it would relieve the sensitive dentine more than the gutta percha. What was the outcome? The boy, the next younger one, was worse than the first one. They come now. Mother does not know when they are coming. If they are late getting home from college and they are asked,

"What kept you?" The answer is, "I thought I would go around and have my teeth examined." That little girl I alluded to in the first place has got her four six-year molars, she is now about fourteen years old; she has had large gold fillings, proximal and every other kind, in every one of her six-year-old molars and many others. I am sorry to say that her teeth are failing, also. I have not the slightest difficulty at all in the world with my child patients; I would far rather have the children and the mother than I would the old man. (Laughter.)

THE PRESIDENT.—Dr. Johnson in discussing the subject touched on the question of psychology or the hypnotic power of suggestion. Let me say to those who have been out of the college for some time that you will see a psychological study if you go into any of the infirmaries. Dentists as a rule like to close the door between their office and the operating room so that the patient waiting outside will not hear the outcry of the patient who is being operated upon. Yet if you go up into the infirmary you will see one hundred patients being operated on and scarcely ever hear a groan. There is something in the psychological aspect of the case, I don't know just what it is. There is a point touched on by Dr. Walter Willmott. He said that hot nitrous-oxide was a good thing. I had a tooth filled some time ago myself, but I took it cold and in sufficient quantities, and I know that the preparation of the cavity was absolutely without pain or without sensation to myself. So that if you use cold nitrous oxide and use enough of it you will certainly have a chance to prepare your cavities absolutely without pain.

DR. MC ELHINNEY.—I had intended to say something earlier, but my natural diffidence kept me from getting up, and I gradually heard the few things I had in my own mind coming out ahead of me. I think that the best element with which to treat sensitive dentine is successful manipulation and particular attention to the peculiarities of the patient. One thing that I had intended to mention when Dr. Gowan spoke of it was the sharpening of instruments. It is well known to those who dabble in mechanics that each material requires a certain angle of cutting edge in order to get the best results. Any of you who have amused yourselves with a turning lathe will know that for iron, for steel, for brass, for bronze or aluminum you will require different angles to your cutting edge, and no sensible man would cut brass with the same tool with which he would turn steel. If that idea is applied to the cutting of tooth substance and you know the instrument which will remove the chip with the least amount of effort, you get the nearest thing to painless operation. I do not wish to blow about it at all, but I must say this question of sensitive dentine has troubled me very little. I suppose I have given pain at times, too. I have really very little trouble with children, because I have never completely grown up myself and there is a sort of fellowship between us. I have little affairs around the office they like to look at. A tame squirrel interests them considerably. When that sits up on the window almost any child will submit to an operation. The children are really not the worst trouble. I find very frequently it

is a good idea to get those nerveless mothers out of the way, because they are chasing social matters so hard that they haven't time to give any attention to their children. Now I am the possessor of four of those interesting little animals myself and I have very little trouble with them.

THE PRESIDENT.—Squirrels or children?

DR. MC ELHINNEY.—Children. I think, perhaps, there is nothing that will ever supersede that delicacy of manipulation. Now we must, in educating men for any profession, take the numbers that present themselves for introduction into that profession, but it will always remain so that there will be just a certain number who will have that manipulative ability given them by nature. It is probably something like music. One man has that co-ordination over the muscles of his hand by which he will only exert the amount of force necessary to accomplish the object. I used to watch the boys operate when I was at the college here and I noticed, of course, in many cases that enough force was put forward to raise an eighty pound weight, and it is not necessary; it takes very little force to cut dentine with a properly sharpened instrument, and I think that is what we should strive for. If a man merely gets his manipulative ability from the time he serves in his tutelage and in the office he will never become an expert mechanic; he must work eternally at the training of his hands. There must be a complete co-ordination between the hand and the eye, and he cannot expect to get that by simply tackling it as a necessity any more than he can expect to get one hundred per cent. of clay pigeons if he takes a gun in his hand once every six months. (Applause.)

THE PRESIDENT.—I was spending some time with a friend who has been heard before this Association and he sometimes gives pain. He is a beautiful operator. I was standing by his chair one day when he was operating and he said to the patient, "I know I am hurting you like the d—, but it won't have to be done again." There is a good deal in that.

Dr. Coghlan will close the discussion.

DR. COGHLAN.—Mr. President and Gentlemen,—My only apology for writing this paper was that in the discussion of it some points of interest might be brought out. I think that we will agree that a great many good points have been brought out, and that as we return to our respective practices that our patients will suffer a great deal less pain than heretofore. I am rather a strong advocate of manipulation, and I am very pleased to see that my ideas are upheld by so many members of the profession. Although we may not all be endowed with the gift of dental manipulation to such an extent that the touch to a tooth, as Dr. Johnson has said, may be a caress, I think by careful manipulation of the instrument a great deal can be done. But outside of that there are some who cannot acquire that result, so I think perhaps the assistance, as Dr. Caesar says, of compressed air would be a good thing. I have heard a great deal about it. Dr. Caesar is really the only person who has touched on the compressed air part of it. Only recently a couple of patients came to my office—they were patients

of a Chicago dentist, I don't know whether Dr. Johnson would know him—but they had compressed air applied through an instrument on a revolving burr, and they declared that the excavating of those cavities was positively painless. There may have been a good deal in the manipulation of that instrument. There may have been something in the fact that the compressed air working the instrument perhaps lessened the friction. I would like to find out a little further about the compressed air appliance. I am sure we are all pleased with the facts that have been brought out here. I thank you, gentlemen, for the kind way in which you have received and discussed my paper. (Applause).

After the announcements had been made the President said ; We are now at the last order of business for the night, the nomination of officers. Dr. Willmott will take the names.

After the nominations had been made convention adjourned till Tuesday morning at 9 o'clock.

NEW JERSEY STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of the New Jersey State Dental Society will be held in the Auditorium, Asbury Park, N.J., commencing July 19th, and continuing until July 22nd. Headquarters at Hotel Columbia. Rates : One person in room, \$3.50 ; two persons in room, \$3.00. Meeting commences promptly at 10 a.m. on the 19th. The various committees have been successful in securing eminent practitioners for papers of present interest, some fifty clinicians in the most modern, up-to-date dentistry, and the space in the large auditorium almost entirely filled with all the newest appliances to practise dentistry.

Friday evening will be devoted to the social side, with a smoker, including a collation and entertainment to the guests, exhibitors and members.

Cut out now the week of July 17th, and meet with us. Seven hundred and fifty-six dentists registered last July ; make it a thousand this year.

CHARLES A. MEEKER, *Secretary.*

WESTERN ONTARIO DENTAL SOCIETY.

The Western Ontario Dental Society will meet in Brantford June 21st and 22nd, 1905.

C. A. SNELL, *Secretary.*

INTERNATIONAL DENTAL FEDERATION.

The next annual meeting of the Executive Council of the Fédération Dentaire Internationale will convene in Hanover, Germany, August 7th, 1905, immediately following the annual meeting of the Central-Verein Deutscher Zahnärzte. Announcement of the programme for the meeting and the projected work for the Federation during the present period will shortly be made through the dental journals and through the official bulletin of the Federation.

EDWARD C. KIRK, *Secretary-General.*

BRITISH DENTAL ASSOCIATION.

The British Dental Association meets at Southport, England, May 19th, 20th, 22nd and 23rd, 1905. The following is the programme :

Friday—8 p.m., reception by Manchester Odontological and Liverpool District Odontological Societies.

Saturday—9 a.m., Representative Board ; 10 a.m., annual meeting ; 12 a.m., general meeting, welcome by mayor and presidential address ; 2 p.m., papers ; 7 p.m., annual dinner.

Monday—9.30 a. m., papers ; 2 p.m., clinics ; 8.30 p.m., Reception, dancing, etc.

Tuesday—9.30 a.m., North Midland Branch invites members and ladies to an excursion to Lake Windermere, lunch, etc.

Papers—"Recent Researches Concerning Dental Caries," Professor Miller ; "Porcelain Orothesis," Dr. Jenkins ; "Meteorological Conditions as Affecting N₂O Anesthesia," Dr. Hilliard ; "Examinations in Elementary Dental Mechanics," Dr. W. H. Gilmour ; "Dental Defence," Dr. C. W. Glassington ; "On Children's Teeth," Dr. N. G. Bennett ; "Enamel," Dr. D. C. Caush.

Clinicians—Drs. H. W. P. Bennette, G. Brunton, W. G. Campbell, R. M. Capon, W. H. Gilmour, Jenkins, S. Mitchell, C. Rippon, F. Rose.

Directory of Official and Voluntary Dental Associations and Societies of Canada

OFFICIAL

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Secretary—Geo. K. Thomson, D.D.S., Halifax, N.S.

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President—Dr. J. E. McDonald, Summerside, P.E.I.
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NEW BRUNSWICK DENTAL SOCIETY.

President—J. W. Moore, D.D.S., St. John, N.B.
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VOLUNTARY

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President—McArthur, D.D.S., Truro, N.S.
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DENTAL SOCIETY OF WESTERN CANADA.

President—S. W. McInnis, D.D.S., Brandon, Man.
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President—Chas. E. Pearson, Toronto.
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MONTRÉAL DENTAL CLUB.

President—G. W. Oliver, 2681 St. Catherine Street, Montreal.
Secretary—W. Watson, D.D.S., 48 Park Ave., Montreal.

The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and so far as possible keep a corrected list, which will be of great value to the organizations.

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Original Communications

ORAL PROPHYLAXIS.

BY W. C. DAVY, MORRISBURG, ONT.

Read before the Ontario Dental Society, March, 1905.

I may say at the start that this paper has not realized my anticipations. I will not, however, offer the moss-covered and time-honored excuses with the hope of impressing my hearers with the stupendous and awe-inspiring pinnacle I might have reached had not these impediments fallen in my way. A subject with as comprehensive a topic must of necessity be largely suggestive. Specific treatment would entail a paper occupying hours whereas we have but minutes. I therefore depend, for the success of my paper, upon the suggestions that may lead to a healthy discussion.

The historic days of the "Divine Right" of disease have passed. No longer Job bears with patient submission his boils; no longer "All's well that ends well." To-day the old maxim is pre-eminently the motto, "An ounce of prevention is worth a pound of cure."

Perhaps the Chinese, whom we consider sadly in need of Western enlightenment, may have a few lessons for us. You are probably all acquainted with the fact that a Chinaman fees his physician as long as he is well, but the salary stops as soon as he becomes ill. Here we have an example of prophylaxis practised far in advance of our Western civilization. What a boon to the health of our people had we the same system in practice. Our family physician would make frequent calls, inquiries and examinations, thus detecting many morbid diseases which so subtly entwine their toils about us and hold us irreparably within their grasp, often without our knowledge.

Prevention of disease, from a dental standpoint, is as important as from a medical standpoint. The field is so wide that in this paper we have time barely to suggest some of the more interesting points.

Prophylaxis may be studied from two standpoints, viz.: First, the education of the people; and second, the dentist's operative duties and research.

The matter of the people's education is almost a staggerer when we consider the gross ignorance of the vast majority regarding the care of the mouth and teeth. What we should teach and how it should be taught, would form ample room for discussion for several conventions. Let us briefly run over a few things that should be instilled :

Proper care of the infant that troubles of the teething period be avoided. Foods, clothing, rest, etc., give the philanthropist ample space to exercise his lung capacity. Too many constitutions to-day are ruined in infancy. Instead of sleeping and eating his early hours away as does the young nestling, or at least finding his own amusement, the infant of to-day must perceive, reason, judge, discriminate, and develope all the higher psychological processes, before the field of his mental vision should be more than microscopical. As a consequence we have over-developed nervous systems acting on under-developed physical constitutions, threatening and upsetting constantly Nature's well-balanced plans, and as far as this paper is concerned, giving rise to many of the irregularities, convulsions and collapses of the teething stage of infancy.

Care of the temporary teeth should be thoroughly impressed on the parent for reasons too well known to all thinking dentists. Broken-down teeth are the store-house and incubators for all germs, whence they are exported in myriads to all parts of the body. They, *i.e.*, the broken down teeth, prevent proper mastication and lead to stomach troubles with its manifold complications. The effects of broken-down temporary teeth and early extraction are perhaps the most fruitful source of irregularities of the permanent teeth, causing spoilation of many a bright career by having a sound mind in a disfigured physiognomy. Abscessed temporary teeth are fountains pouring forth their streams of pus to vitiate the whole constitution.

Next we come to the permanent teeth. The age of budding womanhood and period of permanent cessation of menstrual period with their debilitated condition furnish a gala time for the bacteria causing caries. Pregnancy with the mouth and stomach, and in fact the whole alimentary canal, a brewery of fermentative vats, disintegrates and destroys a dentition more rapidly perhaps than any other period of the same length. Periods of sickness and lowered vitality wage their war on the helpless non-resisting teeth.

The age at which the permanent teeth erupt, especially first molars, the most important teeth of the dentition, forming the centre of the masticating surface, needs to be heralded from every watch-tower, for how often do we see these strongholds demolished and a beautiful symmetry marred by their loss.

The necessity and results of proper cleansing of the oral cavity

must be taught ; time for cleaning, at meals, before retiring, after sweets and other fermentable dainties ; ways and means. We may not pause to observe the approved methods with brushes of different shapes and sizes, toothpicks, water syringes, swabs, floss silk, dentifrices, mouthwashes, antacids, etc. We see toilet tables furnished with elaborate manicure sets ; how many with extensive denticure sets (if I may coin the word) do we find in existence ?

These are some of the instructions that should form the education of our patients with regard to periods requiring especial care and how to preserve the permanent teeth.

After irreparable loss our patients should be instructed how to care for their dentures. Not long since a patient came to a dentist desiring a new denture. He wished to examine her mouth, which she allowed him to do, but said she had not much time as she had to go out to tea. Upon examination of the denture the dentist could scarcely refrain from telling her that he thought she had a fairly good lunch with her and did not think it necessary for her to go to tea. Upon receiving her new denture she inquired what she could do that she would not be troubled with a sore mouth as she had been with her old denture. Our dentist promptly advised her to go to the hardware store and purchase a ten cent scrubbing brush and use soap and water four times a day and he would guarantee she would not have any further trouble.

Now just a few words as to ways and means of bringing about this education. The basis of our education is our public schools. Our teachers meet in annual conventions where any dentist would be welcomed to bring forward some of the unknowns. Every convention should have papers read and illustrated by lantern views ; then an organized examination of the mouths of the children in our Public Schools should be made and the results brought before proper authorities. The facts would be convincing and show that there was need for further education along this line.

Then, in our higher institutions, High Schools, Collegiate Institutes, Ladies' Colleges, etc., some more lasting impressions should be made. A little more practical life with the Latin, German, Algebra, etc., or a little less Spanish and Italian and a little more practical life would raise the physical and moral standard of our race.

But I must not digress. I am endeavoring to treat this subject from a broad platform and from that standpoint these things are involved.

We now come to consider the dentist and his work. Some one will say, "We know all about that," but I want to tell you, gentlemen, some of us need to have some one whispering, nay shouting, in our ears constantly, "Good work, ideal work, the best work you can do." Dozens of patients clamoring for immediate attention, many imagining they are the only patients you have, this condition of affairs is conducive to rapid and poorly done work. Do the best we can, there are times when poor work goes out, but do the sloppiest we know how and oral prophylaxis is a minus quantity.

Fees make a vast difference. Where a practitioner receives fees commensurate with his work it is easier to practise oral prophylaxis, but where such is not the case we have few dentists who will have the moral courage to say, "I will retire first before I will do the poor work I must do for the fee I can receive." The only method is to do the best work we can and collect an adequate fee, or like Foxy Quiller, "take to the tall timbers."

As a chain is no stronger than its weakest link so a filling is no better than its most vulnerable point. A poorly adapted filling is a dangerous envoy to pass from our offices. It leads the patient to suppose everything is all right till he is perhaps rudely awakened to the fact that his tooth is gone past redemption.

"Do you see that small yellow spot in that cavity just over that pulp chamber? All the rest of the cavity is nicely excavated. Don't you think it would be safe to leave that? It can't be very deep and if removed the pulp might be exposed." The answer comes in the old Gospel hymn, "Have courage my boy to say No." Unless in the majority of cases you would prefer to treat a dead pulp with its combinations to devitalizing a live one, you had better say, "Get thee behind me, Satan."

Over-hanging fillings and imperfect contact points are busily engaged writing their autobiographies every minute, hour and day of their existence.

Unpolished amalgam filling are ideal camping grounds, inviting the bacteria to cast their gelatinous-placquey tents and prey along the borders of their domains.

What about this question: Third molars or no third molars? Are we to tell our patients that wisdom teeth are no use, that they should be extracted as soon as erupted; or should we tell them that they are useful teeth, but are located at the angle of the jaw and cheek where it is difficult for the fluids of the mouth to keep them clean; and tell them that these teeth should have their special care for that reason?

Do you remember the last molar roots you were working at? How many canals did you fill? Did you grow weary after you had perfectly filled the lingual and placed a beautifully formed and polished amalgam filling over it, telling your patient that you knew a dentist that would fill the other canals in a year or two; or did you send the patient away, giving him another appointment when you might properly finish the work?

How many boxes of mummifying paste do you use in a year? Perhaps that last cheap amalgam you purchased changes shape and forms crevasses such as are found in the Alps. Remember this, the bacteria will fall into them; but, unlike the tourist, the fall wont kill them.

Was it last week or the week before that you removed that bridge put in by Smith some four years ago? You found that Smith or Brown had not built the molar cap to extend under the gum margin, and, as a consequence, when the bridge was removed you found nothing but the molar roots.

What dentist was it, Mrs. Black said advised her to have a bridge extended from second molar to lateral, which had a short root with an abscess at the end of it?

Do you remember that beautifully fitting inlay Mrs. A. brought you a day or two ago? What an etching your friend had forgotten to make before setting it?

Did you ever find butter cut easier in July than that gold filling you removed to-day? Wasn't the condensation something phenomenal?

As old Gorgon Graham might say, "I just mention these things in passing," to illustrate some of the points dentists might watch more carefully and make oral prophylaxis a more practical subject.

The cleaning of our patients' teeth should receive more careful attention at our hands. No matter how careful our patient may be there is probably chance for improvement. We must do our part and impress him with his duty even though we may have to do some pretty plain talk as a dentist did not long ago. A young minister had been frequently admonished to take better care of his teeth, but to no avail. Finally the dentist said, "Cleanliness is next to Godliness, if you don't clean your teeth your parishioners won't think you are very Godly." He promised to do better.

Frequently we have patients come to us with the two sides of the mouth presenting different appearances; one with the gum tissues of one side clear, bright, well-defined and closely hugging the necks of the teeth; the other may be only slightly different, perhaps a little deposit on one or two teeth, or we may find the gums turgid and dark, one-eighth inch thick where they join the teeth half-way up the crown. Perhaps in one case, where the gums are in fairly good condition, they will tell you that food crowds between two teeth or that a certain tooth is sore. In the more serious condition they will reply that the gums are sore, having forgotten the original cause of loss of use. It is our duty in either case to remedy the evil, remove fillings and restore contact or remove soreness from the offending tooth, and prevent disaster to the teeth of that side. Our patients will be truly grateful and oral prophylaxis put into actual operation.

Perhaps oral prophylaxis would prevent many bodily infections, but once they exist and the tongue and mouth display the fact, it would be folly to expect to remove the trouble by cleansing the mouth alone. One might as well expect to purify a reservoir by scouring the tap. The requisite internal remedies must come to uproot the evil; the fountain head must be cleansed.

Just in this connection we might mention the fact that enlarged tonsils, hotbeds for infectious growths, should be removed.

Our colleges to-day are depending too much on the "pound of cure." Definite stress should be placed on the "ounce of prevention." Our students should be more thoroughly impressed with ways and means of preventing the wholesale destruction of teeth. Now the instructions are almost entirely on restorative processes. Along the line of research, how vast a field is open for the dentist.

Deposits.—Why do we find pyorrhea in some cases and not in others? Here is a man with his teeth affected. Why is such the case? How could it have been avoided? Much has been written, but who can say definitely in this case, this is the cause or that is the cause? Perhaps many of the cases now classed as pyor

might be prevented if we would carefully question our patients when we meet them. We find pyorrhea existing in certain classes of teeth, and those teeth should be a warning. Inquire how parents lost their teeth (if they have lost any) and tell them what we expect for them unless great care is exercised. When definite knowledge is obtained we will know better what to tell them to do, but at present we can only do our best with empirical preventatives. We look for the day of rational preventatives.

Calcific deposits form, but why do they form in this mouth and not in that? What change of foods and what medicinal agents may be used to prevent such accumulations?

We have as yet many ideals to reach, fillings, impression, materials, dentures, etc.

Caries is due to definite bacteria, many, it is true. Perhaps when studied further it will be found that certain germs are to be found especially active in one mouth and certain other germs in another mouth. These germs, like many others, have certain medicinal agents either acting directly on them or their products. One of the red-letter days in oral prophylaxis, as far as the dental organs are concerned, will be when each dentist has his bacteriological laboratory, and as his patient comes in makes a culture from the decay in various teeth, and discovers by accepted methods the germ or germs causing the decay, and after performing the necessary restorations, supplies his patient with the anti-serum for the offending germ or germs, either in a dentifrice or mouthwash, to be used at given intervals.

The subject of this paper presents an expanse, the length and breadth of which have been little surveyed and so sparsely settled that it as yet is a vast wild awaiting pioneers.

The millennium is a bright little spot in a hazy distance.

Sociological, political, religious and scientific subjects are having their day. Oral prophylaxis, in its broadest sense, will have her's, and be no less universal in its influence and application.

DISCUSSION.

By A. E. WEBSTER, TORONTO, ONT.

It is a rare privilege to open the discussion on a paper with such broad principles laid down and so few statements in detail. While a whole essay might be written and profitably discussed by this society on any one of the subjects outlined in the essay, yet I will confine my remarks to that portion of the paper which relates to the prevention of caries and how to clean a dirty mouth—and keep it clean.

While we point with some pride to the wonderful strides of modern dentistry, we may well examine the effect of such long strides, because usually, when long steps are taken, there has not been much notice taken of the surroundings. Almost every dental operation, even among our most conscientious operators, is one of restoration rather than one of prevention. The essayist has pointed out with much force that "an ounce of prevention is worth a pound of cure." Dr. Johnson, in his paper, has opened up a new

field of thought to us. In the past, yes even in the immediate present, we think too little of the effects of the restorations we make. Modern dentistry has a great deal to answer for because of its basis being largely mechanical, rather than scientific. The dentistry of the future will not be less exact in mechanical detail, but will be more exacting in its breadth. The main thought will not be the mechanics but the effect produced. Having examined plaster casts of the young men's teeth entering dentistry in Ontario for the past twelve years, would almost make one doubt if dentists are rendering any valuable service at all. Extraction alone causes such a train of evil effects that the value of the extractor is doubtful. Especially do I refer to the extraction of teeth to correct irregularities. The essayist has pointed out the effect of improperly contoured, trimmed and polished fillings, but neglected to mention in this connection banded roots for crowns. Why should crown bands be put under the gums? Only to irritate them.

Enough has been said of caries and peridental complications having their origin in dental operations; but a good deal more might be said of the prevention of caries and peridental diseases by prophylaxis. Admitting that caries is of bacterial origin, and that bacteria are forms of vegetables having all the characteristics of vegetables, it is plain what would seem to be a rational procedure. Prevent the growth of the bacteria, and there will be no caries. No vegetable will grow without suitable soil, or will it grow if it be frequently disturbed or if there are obnoxious substances about it. Up to the present time there has been no successful means of making the secretions of the mouth such that the bacteria of caries will not thrive. It is true that many mouths are in such a condition for years at a time, but just what that condition is no one knows, hence it cannot be produced. This then disposes of the first means of preventing caries, viz., by making the mouth unsuitable for the growth of bacteria. The next means of preventing the growth of any vegetable or bacterium is by constantly disturbing it. This is especially true of all those forms which attach themselves to their surrounding that they may not be disturbed. This is precisely what the bacteria of caries do. They attach themselves to the teeth forming a little plaque under which an acid, a waste product or perhaps an enzyme is developed which dissolves the tooth substance. These plaques will form on any surface of a tooth if not disturbed, but they are usually disturbed on all exposed surfaces of the teeth by the masticatory movements, hence they are nearly always found in protected localities, pits, fisures and proximate surfaces. Then it is plain that caries is prevented on exposed surfaces of the teeth by mechanical means. If this same mechanical means could be applied to the proximate surfaces there would be no proximate caries. The coarse hard tenacious foods which were eaten years ago largely supplied the mechanical cleansing of the teeth, and in a great measure accounts for why they were not so prone to caries as we are to-day with our mushes and slops. Since we have been supplied with teeth and gums which require a great deal of friction to keep them in a normal condition, and this friction is not being

supplied by our foods, it is only reasonable and physiological to supply it with tooth brushes, tooth-picks, the fingers, or an orange wood stick and pumice stone.

It has been demonstrated again and again that caries can be prevented by the mechanical cleansing of the surfaces of the teeth. Not only this but nearly all forms of peridental diseases can be averted by the same means, and if caries and peridental diseases are prevented, many, if not all, the diseases having their origin in the alimentary tract would be averted. Is not this worth a serious thought? Is it not worth a greater effort than the mechanical detail of a filling, a crown or a denture which are, at best, only substitutes for what we were unable to save, an admission of incapacity.

To attain such results the co-operation of the patient is imperative. In a great many cases this co-operation would be readily given if it were carefully pointed out that almost all diseases of the teeth and mouth and those of the alimentary and respiratory tracts might be prevented by carefully cleansing the teeth and massaging the gums.

To successfully instruct a patient how to care for his teeth and gums an interest in them must be created, and he must know something of dental anatomy before he can be interested in every surface of every tooth. A very few minutes help at each sitting will give a young patient a fair knowledge of his teeth. If the teeth are once properly cleansed and the patient properly instructed how to clean them himself, they may be kept so for months. The dentist might not see the patient more than three times a year.

TECHNIQUE OF PROPHYLAXIS.

For this purpose there are several devices. For labial surfaces flexible rubber cups of various sizes in the straight hand piece, and for buccal and lingual surfaces the right-angle hand piece serves most purposes. These cups when dipped in moistened pumice will carry it to place, and when pressed upon the tooth may be spread out so as to encircle the whole labial surface, and especially conform to the arch of the labial gum, polishing the tooth without wounding the soft tissues. Small stiff brush wheels may be used in both, the right angle and straight hand pieces to polish more deeply between the interproximate spaces. The morsal surfaces may be polished with the brush wheel. This instrument must be firmly held in the hand or it will catch the gum or severely cut the lips or perform epilation on a mustache.

The interproximate surfaces and beneath the free margin of the gums still remain to be polished. Dr. Smith holds that the orange wood stick in suitable holders, so as to reach all locations, is the only proper means of polishing any surface of any tooth; but, personally, I can see no reason for using hand instruments where the engine can do it just as well and more rapidly. But up to recently there has been no controllable motion of the engine which could be used to go beneath the gums or into the inter-

proximate space without wounding the gums more than necessary. At present Dr. Mills' prophylactix instrument would seem to fill the requirement. The motion is a regular swing movement which might be controllable if the instruments were short. But for those who do not have this instrument the orange wood stick made thin will polish between most teeth and under the free margin of the gum. When the teeth are close together, unwaxed foss silk, with wet pumice rubbed into it, may be passed between the teeth and drawn back and forth, first pressing against one tooth and then the other. During all these operations free rinsings and syringing with tepid water are essential to free the mouth from loosened deposits and remaining pumice. Thus having polished every surface of every tooth and massaged the gums thoroughly with the finger wrapped in a fairly soft towel and applied the astringent stimulant where necessary, the patient may be dismissed for two to four or six months, according to the demands of the case. During the several sittings the patient must have become interested in the thoroughness of the work, and would likely be more thorough in his own cleansing of his teeth even without special instruction.

INSTRUCTIONS TO THE PATIENT.

It is never advisable to give advice or instructions that will not be accepted, appreciated and carried out. This is especially true in reference to cleaning the teeth and caring for the mouth. It is worse than useless to tell a boy or girl to clean his teeth night and morning and after every meal, if he is not yet far enough advanced to own a tooth brush. He says, "That is too much trouble, I wont do any of it." But if this boy was told to buy a tooth brush, and shown how to use it properly once a day, say when he rises in the morning, he would likely do it, and, later on, could be induced to use it often.

Presuming a patient has submitted to having his teeth properly cleansed he is likely interested enough to give them proper attention himself. First select a good tooth brush, one that will likely reach all the surfaces of the teeth, it may have a curved handle to reach the lingual surfaces of lower incisors. Next demonstrate with your own brush on your own teeth how he should use his, and see him do it. An abundance of fresh flowing water is all that is necessary on the brush, the main thing is the brushing. It may be necessary, at a subsequent sitting, to point out locations that are not reached by the brush. The gums must be brushed and massaged as before described, brushing downward on the upper gums and upward on the lower. The patient should have some powdered pumice stone and dip the wet brush into this and vigorously polish his teeth with it every week or so. The danger of destroying the enamel is much less than from losing the teeth by decay and pyorrhea. The Kaffers of South Africa always polish their teeth with the coarse sand in the bottom of the brook before they take a drink, and they are noted for their beautiful teeth. At the same time, foss silk with pumice on it may be passed between the teeth and the proximate surfaces polished.

A word about washing and rinsing the mouth. From the earliest years children should be shown how to rinse the mouth. We have all seen patients take water and spit it out again when asked to rinse the mouth. The water should be taken into the mouth and the lips closed and then swished back and forth between the teeth by the effort of the cheeks on the one side and the tongue on the other, and the water not swallowed. Children and even grown-ups should be shown how to do this and taught to use the tongue, lips and a quill tooth-pick to assist in cleansing the mouth. This thorough rinsing of the mouth should be done before and after meals, during and after brushing the teeth.

R. J. READE, M.A., M.D., D.D.S., TORONTO.

One of the great triumphs of medicine is being worked out in our day and generation. Is it to be the honor and glory of dentistry to champion the cause of oral prophylaxis; to study it scientifically; and to work it out practically? Dare we hope that it will be our privilege to advance the well-being of our race by, in no small measure, overcoming disease and proclaiming the incredible advantages to be derived from giving to the oral cavity that amount of care which its importance, as the beginning of the alimentary, demands.

In studying the subject of oral sepsis it is observed that its results may be either local or general. The task allotted to me is to deal with the remote results caused by a diseased condition of the mouth. The bacteriologist teaches that the mouth is the habitat of swarms of bacteria, and that these bacteria are divided into two classes, the pathogenic and the non-pathogenic. It is with the former division that we are concerned to-day. Much time and labor has been given to the study of the bacteria of the oral cavity, and it has been well pointed out that the mouth is an excellent culture medium on which these organisms thrive. In order to appreciate the true value of the conditions these organisms may produce, and also to dispose of the objection, that many mouths receive no attention and yet their owners suffer no ailments, it will be necessary to bear in mind the question of susceptibility to, and immunity from, disease. To illustrate a case of immunity I will quote from the surgery of Rose and Carless, in the section treating on congenital syphilis. "In those instances where the ovum is infected from the father while the mother has escaped, the latter becomes in a measure protected, so that if the child is put to her breast, she does not contract the disease, even though there are ulcerating lesion on the child's gum and lips; healthy wet nurses are invariably infected (Colle's Law)."

Any conditions that lessen the vital functions of the individual, create a susceptibility to the influence of bacteria. This may be illustrated by Pasteur's classic experiment, "who found that fowls that naturally resist anthrax become susceptible if given a cold bath before inoculation." (McFarland on Pathogenic Bacteria). These cases will point out the reasons why some are affected much

more than others by a diseased condition of their mouths. They also teach us to bear in mind that any circumstance occurring which lowers the resisting power of the body may induce a susceptibility in the individual which did not before exist. Therefore, even though the unsanitary condition of the mouth becomes no worse, yet the patient may later succumb to the deleterious influence of the bacteria there generated. And, further, it may reasonably be supposed that had the mouth been in a sanitary condition and prophylactic treatment followed, there might have been sufficient resistant power to overcome the number and virulence of the bacteria that find a nidus in a clean mouth.

A diseased mouth contains many bacteria of necrosed bone, and no pus organisms are so virulent. It will be quite evident to you that bacteria will gain a temporary or permanent lodgment in the mouth, according to the conditions there present. Experiments have shown that mouth-bacteria produce pronounced pathogenic properties when introduced into the circulation. Porre (International Medical Congress, 1887), reported on eleven cases of chronic pyæmia, proceeding from the teeth, all of which were healed by the extraction of the teeth. In one case he mentions the following symptoms: The patient, male, good constitution and habits, suffered for the last thirty years from neuralgia, besides having constantly recurring furuncles and eruptions in various parts of the body, which would often for months become running abscesses. He experienced burning and itching eruptions of hands and feet, which finally changed to stubborn ulceration. His bowels were either stubbornly constipated or exhaustingly loose. He suffered from frequent rigors and febrile attacks of varying intensity, profuse night sweats, retention of urine, serious constrictions of the bowels and urethra. Lancinating pains darted from the maxilla of right side to bowels, bladder, limbs, hands and feet, or to whatever part was locally affected at the time. This latter peculiarity, together with the discovery of a little pus exuding from the locality of the wisdom tooth, led to a final correct diagnosis of his case. The tooth referred to was extracted, and a speedy and complete recovery followed.

Galippe also mentions the general disturbances that may arise, whenever a secretion of matter in the mouth becomes general and profuse, as in the case of pyorrhea alveolaris. "We have seen patients afflicted with fever, stiffness, loss of appetite, severe disturbance of the alimentary canal, insomnia, and subicteric discoloration of the skin."

Let us turn now from the general to the particular, and see what effect diseased teeth have on the lymphatic glands. Quoting from Professor Miller, he states, "Von Bergman also regards lymphadenitis, the acute as well as the chronic form, as a disease occasioned by infectious germs which enter the lymph passages from without, and are thence carried to the glands. Odenthal, prompted by these views and by the investigations of Israel," . . . "undertook to determine whether decayed teeth were actually often the cause of swellings of the lymphatic glands of the neck. He examined in all 987 children, and found decay of

the teeth in 429; in 558 no decay was present. Of the 558 children without decayed teeth glandular swellings were noticed in 275 cases, that is, in 49 per cent. of all. Of 429 children with decayed teeth swellings were noticed in 424 cases, that is in 99 per cent."

In passing on we must mention the tonsils as possible sources of infection. They are so adjacent to the septic condition which may obtain in the mouth, that we should at least be alert as to the likelihood of infecting them. Osler says, "The tonsils proper and the adjacent lymphatic tissue undoubtedly act as portals of entry for micro-organisms, not only in acute rheumatism but probably in other affections. Packard has called particular attention to acute tonsillitis as a precursor of endocarditis, erythema nodosum and chorea." Stengel, in his Text-Book on Pathology, writes, "Staphylococci, steptococci, pneumococci, tubercle-bacilli, and the bacillus of diphtheria have all been observed" in tonsillitis. From the foregoing I am sure it will appeal to you that every effort should be made to prevent an inflammation of the tonsils, and one way that lies within the circle of our duties is to practise oral prophylaxis.

Turning our attention now to the effects on the stomach, we call to mind the fact, that the mouth presents all the conditions necessary for the growth of bacteria. It is reasonable to suppose that these organisms by coating the tongue and the pharynx, interfere with the sense of taste and smell, causing a loss of appetite and disagreeable taste in the mouth, thus leading to a general alimentary disturbance. This loss of appetite, bad taste, and foul odor has been attributed perhaps too often to the deranged function of the stomach. A case showing the far-reaching disturbances caused by an improper care of the mouth may be cited as follows, "A lady, fifty years old, who was afflicted with a long-standing insufficiency of the aorta, but otherwise in good health and enjoying a vigorous digestion, began, after a heavy sorrow, to lose her appetite, complained of cardalgia (which set in after every meal), belching and heartburn, until she could take but slight liquid nourishment, and finally was compelled to restrict herself to tea. Repeated courses of treatment with Carlsbad water brought but temporary relief. A disagreeable odor from the mouth, especially in the morning, led me to an examination, which revealed swelling and slight ulceration of the gums; besides this the tongue was heavily coated and the posterior wall of the pharynx somewhat inflamed. Frequent syringing of the oral and pharyngeal cavities with iodine-myrrh tincture stopped the cardalgia in the course of a few days, and restored the patient to her former appetite.

"As often as the patient, who has a great antipathy to medicines, neglects the disinfection of her mouth for but a single day, the always more or less hyperæmic gums swell again, and the old digestive trouble recommence." Prof. Miller concludes, "I have been able now for seven years to watch this play of stomach-complaints in the wake of recrudescent inflammation of the gums."

It has been taught that the digestive action of the stomach juices destroys the bacteria that may find their way into it. But

experiments show that the microbes swallowed at the beginning of a meal pass through the stomach and find their way alive into the intestines. It is the hydrochloric acid of the stomach that acts on these organisms, and any disturbance of the functions of the stomach which diminishes the production of it, is favorable to the life of the bacteria, which, in their turn, again aggravate the malady. This pouring of bacteria into the stomach could be prevented to a great extent by subjecting the mouth to a proper cleansing.

Another very important pathological condition which we will do well to consider is that of pernicious anemia, and the latent pyogenic effects of diseased teeth. The following is a case reported by Hunter, of London, "I have now to point out that in connection with this dental caries you may have these pyogenic effects latent. Such a case was that of a man who presented no dental history during life, so far as could be ascertained. He died of pernicious anemia. *Post-mortem* the condition was the following: The teeth were necrosed in their sockets, which presented a sodden appearance, and in this particular case at the bottom of one of them was an alveolar abscess the size of a small hazel nut, leading by sinus to the necrosed tooth." In connection with another tooth there was a smaller pus centre. Further there was suppuration in the ethmoidal sinus on the left side.

I will conclude this paper by recalling to your mind the fact that the pneumococcus and the diphtheria bacillus have been found in the mouths of healthy individuals. The effect of bacteria bears a relation to dose and resistance. If the mouth is maintained in a healthy condition a great deal has been done towards increasing the general and local resistance of the individual, to the influence of these germs of pneumonia and diphtheria. And more than that, we have rendered the culture medium on which these organisms thrive less favorable for their growth, and in this way we may reasonably suppose that their virulence has also been diminished. As regards the dose of bacteria the system receives, it is greatly decreased by cleansing the mouth.

And, finally, it is evident that by an intelligent study and a vigorous understanding of the subject of prophylaxis, the dentist has the opportunity of satisfying his higher aspirations—the doing the greatest good to his fellow beings. And my plea is that you consider oral prophylaxis in its broadest sense and deepest meaning the foundation and root of dentistry.

ANNUAL MEETING OF THE ONTARIO DENTAL SOCIETY, MARCH 13, 14, AND 15, 1905.

SECOND SESSION (Monday Evening).

At 8.30 o'clock p.m., the President, Dr. A. W. Thornton, took the chair.

Now, gentlemen, if you will come to order we will start to-night's session. The first order of business will be the reading of the minutes of the session this afternoon.

Dr. Hume read the minutes of the afternoon session, which were confirmed as read.

THE PRESIDENT.—I understand that there was a notice of motion given this afternoon, if so, we will receive the motion at the present time.

DR. WEBSTER.—I desire to move that the Constitution of the Ontario Dental Society, be so amended as to make the members of the Programme Committee, members of the Executive Committee. Seconded by Dr. W. E. Willmott,

The President put the motion, which, on a vote having been taken, was declared carried.

THE PRESIDENT.—I am very sorry that an accident to the train detained us this afternoon. I don't know just what was the reason or who was the Jonah. We had a man from London and a man from Chicago, and just which was the Jonah I am not prepared to say. I think possibly the man from Chicago, although there are some decent men who come from Chicago. But we had the accident, and we were very sorry indeed to be delayed.

Now, if there is no other business we will go on with the programme of the evening.

THIRD SESSION.

Tuesday, 14th March, 1905.

This Session was devoted to the inspection of exhibits and clinics.

FOURTH SESSION.

At 2.30 o'clock p.m. the President, Dr. Thornton, took the chair and called the Convention to order.

The Secretary read the miutes of the previous session, which were confirmed as read.

THE PRESIDENT.—There is a little matter of business here which perhaps we had better attend to, which may be done as easily now as at any time. A year ago, I think, at this time there was a petition presented to The Ontario Legislature, drawing attention to the neglected condition of children's teeth and asking that some legislative action be taken along the lines suggested in these paragraphs. It has been suggested that, as there has been a change of Government, the present Government be waited on with

the same petition. I will read the clauses, they are only short, if some one then will move and some one second that they be signed by the President and Secretary, they will be presented to the Legislature.

PETITION TO THE HONORABLE THE LEGISLATURE OF
ONTARIO, IN SESSION.

Humbly Sheweth :

1. That the decay of the teeth of the rising generation is alarmingly on the increase. Out of several thousand children examined in the Public Schools in several Canadian cities and towns only 5 per cent had sound teeth, the average number of decayed permanent teeth per child being six, while nearly 20 per cent. of these decayed teeth were past saving.

2. That such terrible destruction of the permanent teeth in the growing period of childhood must result in serious injury to the health of the children.

3. That owing to the lack of knowledge among parents as to which teeth are permanent, etc., very few children, even of the well to do classes, have their teeth attended to, while the teeth of the poor are entirely neglected.

4. That in the opinion of your petitioners there is but one remedy for such a serious menace to the physical well-being of the children of the present and future generations, namely, the amending of the school act, giving School Boards the privileges to require school children to have their teeth examined twice a year, either by their family dentist or a dental health inspector, appointed to examine the teeth of those children who do not bring a certificate from a dentist.

Wherefore your petitioners humbly pray that your honorable body may, in the interest of public health, thus amend the School Act, thereby ensuring the certainty that parents shall know the condition of their children's teeth in time to have them filled without pain, or loss of time from school to the children, or heavy expense to the parents. The children of the poor will also be reached in time, and have their teeth filled free, and your petitioner, in duty bound, will ever pray.

DR. MARTIN.—I would move that, Mr. President ; I think it is a matter of vital importance.

DR. SMITH.—I second that.

The President put the motion, which, on a vote having been taken, was declared carried.

DR. SPAULDING.—Mr. President, there is a matter I would like to bring before the Society at this time under the heading of new business. There is a face we have missed, not only myself but a great many of the rest of the members, that of Dr. Sylvester Moyer, from this meeting. I think it would be a graceful act on the part of this body to telegraph to Dr. Moyer our feelings of regret at not seeing him here. I put that in the form of a motion that it may go through, seconded by Dr. Revell.

THE PRESIDENT.—I may say, as a class mate of Dr. Moyer, he

was one of the men that the profession of dentistry in this Province could ill afford to lose—one of the best and brightest men that ever graduated from this college. I am certainly heartily in sympathy with the motion that has been made.

The President put the motion, which, on a vote having been taken, was declared carried.

THE PRESIDENT.—I have just learned from one of the members present that Dr. Caesar was prettily badly hurt as he went home to dinner. I am not sure how seriously it is. I think, perhaps, it would be well to send over a message of sympathy. Without a formal motion it would be well to depute somebody to go over to make inquiries concerning him, to find out how badly he is hurt.

I have very much pleasure in introducing to the Society Dr. W. C. Davy, of Morrisburg, who will read his paper on "Oral Prophylaxis." (See page 157.)

THE PRESIDENT.—We will ask Dr. A. E. Webster, of Toronto, to open the discussion on this paper. (See page 162.)

THE PRESIDENT.—We will ask Dr. R. J. Reade, of Toronto, if he will kindly continue the discussion on this paper. (See page 166.)

THE PRESIDENT.—Gentlemen, the paper is open for general discussion.

DR. McDONAGH.—Mr. President and Gentlemen,—I want to take a hand in the discussion of this subject, not because I have any greater knowledge than any other member of the society, but because it is necessary for some one to start a general discussion. In my practice I have had a great deal to do with oral prophylaxis, and in connection particularly with the treatment of pyorrhea. One case that comes to my mind at the present time is probably interesting. A gentleman presented himself for treatment whose teeth were affected with pyorrhea, and who had also suffered with diabetes for some years. I undertook to cure the pyorrhea, and after it was entirely cured his physician assured me that the diabetes had almost entirely disappeared. The gentleman is able to go to work now and follow his ordinary avocation, which he was not able to do before.

Grandular swellings and many other troubles have been spoken of by Dr. Reade, and we have all seen these in our practice and, of course, it is only necessary to add our quota to his assertions. I was very much pleased with the paper by Dr. Davy. It is very pleasing from the standpoint of a man who desires to enter into a discussion, because there were so many points left open for us to discuss. In fact, I never realized before that prophylaxis covered such a wide area; I never realized before that prevention and prophylaxis are similar. There was one question which Dr. Davy spoke of that I would like to emphasize, and that is the banding of roots for crowns. Probably I should not say anything, because I am, to a certain extent, a crank on that subject. I do not believe it is necessary to band an anterior root. It is a rare thing to find an anterior root banded properly. It is a rare thing to see one of the six anterior teeth with a band on it which fits the end of the root. In nearly every case we do not get it to fit, and we do

not know that until the tooth has been extracted, but we do know that there is very often an inflammation around that band which it is not at all necessary to have—an inflammation which we cannot overcome because the band is a constant irritant, and as long as the band is there so long is the irritation there. I do not say that it is impossible to band a root properly. It is, but it is not done. We do not do it. I do not say that a band which is fitted properly to the end of a root is not a good thing to have in some cases. In anterior teeth it is often an advantage to us to be able to band a tooth, but it is not necessary to extend the band so far that it will impinge on the alveolar process, as is very often done. That is one of the great causes of pyorrhea in crowned teeth. There are a great many different ways of putting on crowns where a band is not necessary, and there are ways of crowning a tooth by which we can obtain just as good, if not better, results so far as the strength of the tooth is concerned, and certainly so far as cleanliness is concerned.

Now, speaking of Dr. Webster's paper I must say while he was speaking he did me not a favor, but he disturbed me very much; he kept me awake, I couldn't go to sleep, there were so many things in his paper that interested me and so many things that pleased me. Of course, it would not be in my nature to agree with everything Dr. Webster says. We never do. But there are so many things that Dr. Webster has said which are true and which I entirely agree with that I must commend Dr. Webster very heartily on the paper—the useful, practical paper which he has given us. The other papers were also useful and practical, but Dr. Webster's part of it, whether chosen or given, seemed to strike the popular heart of the dentist. Speaking about friction for preservation of the natural teeth, Dr. Webster left that one fact, and I think he forgot it. If our teeth received the proper amount of work, if our teeth are used to masticate the proper kind of food, then our teeth will be stronger and they will resist caries much better than if we do not use that kind of food. Not only is that true but, as Dr. Webster says, the friction has a great deal to do with the preservation of the tooth. Now, in coming down along that line, Dr. Webster spoke of removing deposits from the necks of the teeth. He said that in one sitting of half an hour, I believe, he thoroughly cleaned a half dozen teeth, and he said that was enough to do in half an hour, and that you should not do any more in half an hour. I must take issue with Dr. Webster there. I don't think it is possible to thoroughly clean more than two teeth in half an hour. I mean to thoroughly clean them, to do justice to them and put them in proper shape. I think if Dr. Webster will think over his practice of doing that—I believe he is very thorough, that is, about what he does—two or three teeth at the most in half an hour.

DR. WEBSTER.—At one sitting, Doctor, I don't limit it to half an hour.

DR. McDONAGH.—If you do not I agree with you.

DR. WEBSTER.—A very simple case, just a simple marginal gingivitus, not a pyorrheal case.

DR. McDONAGH.—In pyorrhea cases it is not wise to try to successfully treat one tooth in less than three-quarters of an hour. I take a great deal of interest in pyorrhea. I have studied the time it takes. It takes three quarters of an hour at least for one tooth. That goes to show us how much care it is necessary to use in oral prophylaxis. One instrument Dr. Webster spoke of, among others, was a rubber cup. Now that is very good in its way, and I sometimes use a rubber cup—at least, I did until recently—lately I have given up the rubber cup to a great extent and substituted in its place a brush which is made in the form of a rubber cup, it will do the work in half the time and do it better.

Now, I would like to talk of the cleaning of the teeth. I don't know whether to start in or not because it takes so long. However I will go as superficially into it as I can. I believe that there is nearly as much harm done, if not as much, by the use of the tooth brush as there is by its neglect. Remember, I believe in the use of a tooth brush, although there are other things which perhaps would take its place. There is a brush now on the market, not a bristle brush, which is a good brush, and perhaps will take the place of the bristle brush, but still I have a great deal of confidence in a tooth brush if it is properly used. But we have to consider the use of a tooth brush for a moment to see when it is properly used. Consider for a moment the position of two molar teeth. Consider the interproximal space. Now think of a joint between two gum sections in an artificial denture that you want to put plaster between where they are ground together. When I was a student in dentistry we had to always put plaster in between those joints. The best possible way we knew of to put plaster in there was by the use of a brush with comparatively stiff bristles; it will throw the plaster right into the joint and fill the joint up thoroughly, and it is very difficult to get the plaster out again. Now, you have the very same condition between two teeth in the interproximal space. You take your brush and brush particles of food in there. Now you have brushed that food in there, if you take Dr. Webster's advice, using nothing but fresh water, you brush your teeth and it takes you about two minutes; you have brushed into all those interstitial spaces food particles; you have brushed to a certain degree out the food products or the products which the bacteria have fed on; you have established in that spot the best ground you can possibly get for your bacteria to breed upon, and if you leave it there bacteria will thrive. The same argument holds in teeth in which the islands of enamel are not properly coalesced. You have spaces and you drive food into those spaces and you cause decay, certainly you do. How can you overcome that? By taking the pains after you have driven the food in—and it is impossible to avoid doing so—to drive it out again; or if you do not do that drive in with it an antiseptic which will stay there long enough to keep the bacteria from growing. But the better way by far is to be sure you have driven out, that you have brushed out, all that you have put in there and all that was there before, and that takes a long time with the brush we have at the present time, and for that reason we have to use floss and so forth.

if we desire to undo the injury that we have done. Now, that point I have tried to make a number of times, and that will account to us for a great many people telling us that after they have learned to brush their teeth they have had decayed teeth whereas before they did not have any. The reason of that is that they will brush their teeth perhaps once in a day and leave the ground there for bacteria for the rest of the day, not brushing them again until the next day. I claim that is worse than if they did not brush them at all. In order to keep the teeth from decay by the tooth brush, it must be used after every meal and thoroughly used. Otherwise if you do not use the brush, rinse the mouth thoroughly and do not do harm where you are trying to do good.

I have a few other remarks I would like to make but I will conclude with what I have already said. (Applause.)

DR. PEARSON.—I would like to ask Dr. McDonagh if he always brushes his teeth with his mouth full of food? (Laughter.)

THE PRESIDENT.—In part of this discussion I have got all balled up. For instance, Dr. Webster said, without a doubt caries has been averted by mechanical means. I would like to know how he is going to prove it. When President Roosevelt was down in the South an old colored man rushed up to the car as it was standing for a short time and he said, now, Mr. President, I know you have got lots of souvenirs, but I want to give you a sure thing, I have a rabbit's foot here; carry that in your pocket and you will never have rheumatism. He is carrying it and it is said he has never had rheumatism, but I am not sure that he would have had it if he had not had the rabbit's foot, and I am not sure whether it was the rubbing of the tooth or that the tooth was immune to caries. He started out also with a specific case of a young patient and then he has got that young patient's moustache all tied up in the wheel. (Laughter.) Now, Dr. McDonagh, do you brush your mouth full of stewed prunes? (Laughter.)

DR. McDONAGH.—I would answer that question by asking Dr. Pearson why does he brush his teeth if he has nothing between them.

DR. PEARSON.—I will answer that question by saying that I first rinse all the loose part of the food out so that I cannot brush those same particles into the interstitial spaces afterwards, and when I am using the brush I expect to brush the particles out which have already collected in there.

DR. McDONAGH.—What do you do with the particles that stick in the gelatinous placque?

DR. PEARSON.—There aint any in there.

DR. WILKINSON.—On this subject I have had a resolution, two or three times at this convention, and there never seemed an opportune time to introduce it, but after a discussion such as we have had to-day I am going to take the liberty to do so. I have been much pleased with the paper as well as the two criticisms. I think we should not quarrel with each other about cleansing the teeth and all that. I think that the weight of evidence goes to show that with those who care for their teeth, to some extent, there is far greater immunity to decay than with those who do not. It is with that

class that, in my motion, I wish to deal. I think dentistry has paid in the past too great attention to exciting causes and to causes which we can remove by mechanical means. It seems to me that those little people over there in the East, who are teaching those big people in the East such a big object lesson, in regard to dentistry can teach us a lesson, that if we would live simpler, with less animal tissue, and chew well what we have we would have less cause for removing these accretions and deposits, resulting, as I believe, in greater tonicity and greater molecular cohesion of these substances of the tooth. One essayist made a good point when he said that the movement of matter in the mouth of the surfaces of the teeth has a great deal to do with the repression of decay. I wish to ask the members here who ever saw a cavity start in the lingual surface of the lower anterior teeth? I have not seen one yet. I dont know of any surface that is better brushed. The motion which I refer to and which I cannot see any objection to passing, is this: Moved by myself, seconded by "That in the opinion of this Convention immeasurable evil is caused by the ignorance and neglect of patients in regard to the sanitary condition of the mouth," etc.

THE PRESIDENT.—I don't know that it is just strictly in order, and yet I do not know that it will do any harm. They had a couple of political conventions here and there was a resolution introduced and the leader of one of the political parties said, If it doesn't do any good it won't do any harm. I think the ground has been better covered by the resolution which we passed a short time ago, sending a petition on to the Legislature, making it permissible for School Boards to appoint dentists. I think the ground has been pretty well covered. However, you have heard the resolution. Will anybody second it?

DR. SPAULDING.—For the sake of putting that to the vote I will second the motion.

The President put the motion, which, on a vote having been taken, was declared carried.

DR. STEELE.—I noticed with pleasure one of the good points the essayist made, which would do some good in prophylactic treatment of the teeth, was for dentists to read papers before teachers' conventions and have the people educated. Do not tell them too much. I think we cover far too much ground in this subject and we do not get to the bottom of it. We will go away from here and not do anything. Supposing you would instruct teachers in the cause of decay and let them know that mechanical cleansing will prevent decay on perfect enamel surfaces and then let them understand it will not prevent decay in crevices. If that were done we would do a lot of good. I think Dr. Webster sounded the key note when he said to ask the patients to do something they will do. When you want to teach anything you do not start out at your result, you start in to bring them up gradually to something. Start them in to brush their teeth. I think in this line you are sending a resolution to the Legislature which will never pass. If you would ask the Legislature to pass an Act that children would not be allowed to come to school unless their teeth were brushed and cleansed, you might get that

passed. I don't think you will get an Act passed which will make it compulsory.

THE PRESIDENT.—It is not to make it compulsory, but permissible, for School Boards to have it done.

DR. STEELE.—I think you would do far more good if you had it permissible that their teeth could be brushed. (Laughter.) In some schools they are not allowed to come to school unless their shoes are blacked, so that, if it was passed that way it might do more good.

THE PRESIDENT.—The time is already past, and we have another paper from Dr. McElhinney, and I will now ask Dr. Davy if he will close the discussion. (Applause.)

DR. DAVY.—Mr. Chairman, Ladies and Gentlemen,—I have been very much pleased with the way the paper has been discussed, and I am very grateful to those who have taken part in this discussion and made an indefinite paper to a certain extent a definite one, and I only wish we had more time that others might enlarge on it in the same way. I do not know that I have any points that need to be mentioned. What I meant to say was that if our physicians were more attentive to the prevention of disease by examining their patients regularly at stated intervals we would have fewer broken down constitutions than we have to-day, because as it now exists people wait until they are in such a condition that it is often and at times almost impossible to do anything for them before a physician is called in; then we have these constitutions often at times broken down and reproducing themselves to pass on generation after generation and rendering our race a weaker race than it otherwise would be.

With regard to cleansing the mouth, I maintain the position I took. I said that cleansing the oral cavity might prevent many bodily infections, and I certainly believe it does, but I am as firmly convinced that after these bodily infections do exist that it is folly to try to cure those conditions by merely cleansing the oral cavity. That was the point I wished to bring out. If you have a patient who is down with typhoid fever and the conditions all showed that, you would be a pretty green scientist if you hoped to cure him by cleansing the oral cavity alone. That may assist, but it is not going to cure him.

Now, as our time is used up I will not attempt to mention any other of the many points that have been brought out. I thank you all, gentlemen, for the attention and the interest that has been shown in the discussion. (Applause.)

PYORRHEA ALVEOLARIS.

BY H. POPPWELL, BRANTFORD, ONT.

Read before the Brant County Dental Society.

Pyorrhea alveolaris, is a disease which comes under the scope of the dentist ; and although, next to caries, it causes the loss of more teeth than any other disease, yet it is surprising what little attention is paid to it, both by dentist and patient. This might be easily explained by the fact that the treatment is often tedious and prolonged ; and also the difficulty of obtaining a fee in accordance with the time, patience and energy spent in properly treating a case.

Authorities differ as to the cause of pyorrhea. It has been accepted by the majority, however, that it is local in its origin. The mere fact of the parts healing, after the affected tooth has been extracted, goes to show that it is not caused wholly by any of the constitutional diseases, such as gout, rheumatism, uric acid or syphilis. The puss from an extremely loose tooth of a human being has been transferred beneath the free margin of the gum of a healthy dog, causing that animal to lose all its teeth, which makes it quite obvious that the disease is infectious, and that it is the work of some micro-organism, which, so far, has not been isolated. Whether from local or constitutional causes, it is a destructive disease, and the laity have the right and are going to demand proper treatment.

As other diseases, pyorrhea is found in different stages, from a bad attack of gingivitis to the exposure of the pulp at the apex of the root. In an ordinary case, we find inflamed turgid gums ; pus oozing from the free margin of the gum, and by close examination pockets are found between root and alveolus, which the pus, and in some cases, the peridental membrane and alveolus completely destroyed. Nodules or deposits might be found on the roots, which is called serumal calculus, and is supposed to come directly from the blood ; cases have been cited, where a small swelling on the gum from which pus flows freely, upon examination, this serumal deposit has been found when, after its removal, and an antiseptic wash the case has healed completely. At the same time the free margin of the gum seemed to be in a healthy condition ; which goes to show that this *serumal deposit* and the so-called *salivary calculus* are two different things entirely. Salivary calculus is a deposit found around the necks of the teeth, which acts mechanically in loosening the teeth by pushing back the free margin of the gum, and interferes with their mechanical support. It does not cause the so-called pockets to form as does the serumal deposit, and is not associated with pus, it is only dirt, as is the tea kettle containing a deposition of lime.

There is another way in which teeth loosen, when there is no swelling, pockets, or pus. Some call it "*Dry Pyorrhea* ;" others do not include it in their cases of *pyorrhea*. Not long ago, a patient

came into my office, carrying in her hand, an upper second bicuspid tooth, which had been crowned and a first bicuspid facing swung on to it. The root was clean and had the appearance of having been polished. The remaining teeth were loose, the gums pink and hard; no pain, pus nor swelling. This was an ideal case of the so-called "*Dry Pyorrhea*."

The treatment of this disease seems, as yet, to be in its infancy, although it is mainly mechanical—when I say in its infancy, very few dentists give it proper attention and thought.

There is a *preventative* treatment, and that is, to be careful and leave the free margin of the gum intact after dental operations, ligatures, stays, wooden wedges, etc., might be left between the teeth causing the gum to recede a little, where some germ might easily lodge and start its work of destruction, or a simple abrasion might be sufficient to be called a predisposing cause, in some cases.

If a patient comes in with salivary calculus deposited quite thickly around the necks of the teeth, the gums turgid and angry looking, wash out the food particles, then scale all that calculus from off the teeth; wash thoroughly out around the gum margins with tepid water or peppermint water, then with a fine probe, explore beneath the gum margin, and if the peridental membrane is intact, that would be all the treatment necessary, unless a mouth wash were prescribed.

In cases where we have four or five teeth quite loose, the gum detached, and pus oozing from its free margin, we have a case which requires patience, skill, and often a great deal of time to properly treat. The first thing to do is to properly bind the teeth together, in order to hold them firmly, and to keep them from constantly moving in their sockets during mastication. This is often done by ligatures, more frequently by gold bands, soldered together and cemented on the teeth. Dr. Harlan, of New York, formerly of Chicago, advises silver bands, on account of the benefit derived in the disinfectant qualities of the silver. Whichever way it is done, it is necessary to steady these teeth in some way before treating.

The next step in the treatment requires skill at times. I refer to the removing of all foreign particles from the roots, such as deposits, etc. Many sets of instruments have been devised for this purpose. This is what I consider the most important part of the treatment.

After being sure that all particles are removed, wash out that pocket thoroughly with hydrogen peroxid or any good cleansing agent. Then burn, coagulate and incinerate the pouch with trichloracetic acid ten per cent., or nitric acid; There is great danger of over-treating in these cases. So after giving one good treatment, leave it alone and give nature a chance to throw out new granulations.

In cases of extreme pain a counter irritant on the gum might be used, also internal remedies in order to ease patient, such as antikamnia or Dover's powder.

In cases of sensitiveness around neck of tooth, any of the

antiacids might be used locally, such as silver salts, chalk, magnesia, etc.

Where there is extreme pain while scaling, use local anesthetic but not too freely, on account of sloughing.

After one good treatment, a good stimulant might be necessary as the parts might be rather sluggish. Some of the essential oils or even silver nitrate might be used.

A mouth wash might be prescribed. I have found glycothymoline very effective at times. It is impossible to treat so large a subject as pyorrhea alveolaris without going into the whole question of personal hygiene and prophylaxis, and that would mean too long a paper for this evening.

THE SELECTION OF FILLING MATERIALS FOR YOUNG PATIENTS ON A RATIONAL BASIS.

BY A. E. WEBSTER, TORONTO, CAN.

Read before the Toronto Dental Society.

For many years it has been the teaching and the practice to fill the teeth of young patients with a plastic relatively non-conducting, easily inserted, filling material. This practice was arrived at by the best of methods—that of experience. Much of our boasted scientific bases for practice is really an attempt to explain what we have found to be good by experience. Nearly all methods of practice have been found good or bad by experience independent of the theory of it. The why a practice is good or bad is for theory to explain. Practice comes first and theory last. This may not seem logical, but it is fact, nevertheless.

After years of filling young teeth with plastics, the thinking members of the profession began to look for a reason for their practice. It wasn't hard to arrive at the conclusion that the teeth get harder as they become older, because this had been noticed in most other things in nature. Wood hardens with age, so do bones, or at any rate become more brittle, and so on.

If teeth become harder they surely cannot decay so readily. This theory was borne out in the fact that as adult life is reached there is less caries, and as most teeth were lost before an increased tendency to caries came on in old age nothing was thought about it. Then the theory began to work back the other way. Teeth which were decaying rapidly were soft teeth and were not strong enough to bear the insertion of hard fillings. Out of all this theorizing grew a most disastrous practice, which it will take decades of time and many lamentable funerals to eradicate. The dentist, with an air of wisdom, would explain to his patient that his teeth were soft and that it was only a matter of a short time until he would be wearing "false sets." This teaching and that other equally false one that pyorrhea cannot be cured has been so engrrafted upon the

minds of the public that they look forward to "false teeth" with as much longing as the devout Christian does the hereafter. The natural state in life is wearing "false teeth" as the natural state in existence is in heaven.

There is an element of the dental profession who will hang onto these theories with the tenacity¹ of a drowning man because they do not know how to save teeth by filling and treatment. Their business is "pulling" teeth and making "plates," by trade secrets, and selling them to the public at large "prices." These substitutes for teeth can be made by cheap labor in a back shop.

Dr. Black showed by exact scientific methods that neither the enamel nor the denture changed in stricture or density during life. Nor is there any change in the strength of the tissues. And more, that any normal tooth tissue is sufficiently hard to bear the packing of filling materials against it, and that the density of teeth had nothing to do with their susceptibility to caries. These facts spoiled the theories for filling young teeth with plastics and allowing them to get hard before a gold filling be inserted, and that teeth decaying rapidly are soft and should be filled with plastics, because they would not bear the pressure of insertion.

But, notwithstanding these facts, the practice of inserting plastics for young patients is a good one in certain cases, but must be explained for different reasons from those formerly held. In the other case, if teeth are decaying rapidly, and gold in general is admitted to be the best filling material, then it is especially demanded in such cases.

Let us consider for a moment in what cases plastics are indicated, or to perhaps state the case better, in what case may we not use gold or porcelain. It is not advisable to use gold for a patient if the pain or nervous stress of insertion of it will be a greater loss than the difference between the services of a plastic and a gold. If the patient gets such an impression of gold fillings and dentistry in general, that the teeth may afterwards be neglected in consequence of this impression the operation was not advisable. Since pain, inconvenience and nervous irritability, are all conditions of the mind and largely under the control of others, there will necessarily be a great difference among dentists as to what patients should have gold fillings inserted for them. A child may have several tedious operations made by one operator, without even so much as thinking about it, while if another did the same operations it would be a case of nervous prostration. These conditions must be reckoned with in recommending permanent fillings for young patients. If the patient cannot sit still long enough to have a proper operation made, or the sensitivity of the tissue cannot be controlled to make the proper preparation, then a gold filling is not advisable. The great secret is to control the patient and make him believe he is all right and not being worried, this is not done by telling him he is not being hurt. Dr. Ottolengni told us at Montreal that he inserted gold fillings in the initial cavities for his youngest patients. He showed me several gold fillings in first molars for patients less than ten years of age. There can be no doubt that this is good practice, and can be done for young patients without leaving a bad impression on the mind.

It is not advisable to use a gold filling for a young patient, where the cavity is so extensive that the malleting of the filling will cause a peridental irritation sufficient to lame the tooth. Better to use a plastic or an inlay. If a metallic filling must be so large or approach so near to the pulp that there will be marked irritation from changes of temperature it is much better practice to insert a plastic and wait until the pulp recedes sufficient to bear a metallic filling. Again, in many young teeth the decay has approached so near the pulp that there may be some doubt about its remaining alive. In such cases plastic are indicated.

Before the inlay became so generally used there were many teeth in which there was little else than enamel standing. Plastics have kept these cases in good condition for years. Of course, an inlay gives all the advantages of a cement filling without its disadvantages, it supports the frail enamel, is non-conducting, and the surface is indestructible. The inlay is the ideal filling for the young, timid, nervous patient, whose teeth are extensively decayed. There is a kind of amalgam inlay which can be used in incisors, cuspids and bicuspids where the surface of the filling is not much exposed and there is extensive decay. In many cases the patient cannot afford porcelain or gold inlays, gold fillings are out of the question. Cements soon wear out and amalgams darken the teeth. In such cases fill the cavity almost full of gutta-percha, taking care that the gutta-percha is made to adhere to the cavity walls, this may be done by first wiping the cavity walls with chloro-percha ; then with the amalgam carried to place with a hot burnisher, sufficient pressure is applied to force the hot amalgam into the gutta-percha with a wiping movement toward the margins. Dr. Gowan has suggested this method to the writer, and has shown him cases that have given good service for four or five years.

GOLD FILLINGS ARE INDICATED.

To Sum Up.—The reasons for inserting a plastic filling in young teeth or those decaying rapidly are not because these teeth are soft and may later become hard, or that they are not sufficiently dense to bear metallic fillings. Plastic fillings and inlays, which come into this class, are used in young teeth, *because* :

1. They cause the young or debilitated less stress in insertion.
2. They are relatively non-conductors of thermal changes.
3. They cause less irritability to the peridental membrane during insertion.
4. The pulp in young teeth is so large that in many cases its life would be endangered by a metal filling.
5. Greater portions of enamel may be left for esthetic reasons.

ON INDENTURED STUDENTS AND THE CONDUCT OF THE INFIRMARY.

By C. E. PEARSON, TORONTO.

Read before the Toronto Dental Society.

To begin with, I wish you to understand that I do not presume to be an educationalist of the first rank. I have no desire to dictate to this growing profession of ours, and as I learn more concerning educational work I reserve the privilege of changing my opinions and expressions in accordance with the advancing thought. But having given some attention to such matters and having only the interest of this progressive profession at heart, and that most at heart which relates to dentistry in this Province of Ontario, I have come deliberately to the conclusion that we are not proceeding in the right way to get the best results from the educational institution which we call the School of Dentistry of the Royal College of Dental Surgeons of Ontario.

Ever since the establishment of the school in 1875 it has been making "dentists"—good dentists, many an honor to the profession and men prominent in every circle in which they have moved; men who have from their own innate being, their sense of right and wrong, honor, justice and brotherly love, have upheld the dignity and worth of the profession until we have grown to what we are; and by virtue of the strength of these men we are what we are, and shall go on to greater things. Such men have added to the art of filling teeth something above the mere art. The force of their own characters and works have elevated the art to a learned profession.

To a certain degree our school has kept pace with this professional spirit. In some respects it has even gone beyond the spirit of the day, but in other respects it is, alas, sadly wanting. I refer to the indentured student and his preceptor, and to the conduct of the infirmary, and I am bold enough to say that, in my opinion, there is no longer any necessity for the indentured student, provided the infirmary is conducted in the manner becoming and befitting an institution which presumes to educate professional gentlemen. I say this without reflection upon its past conduct or desiring to criticize the Board or those in charge; I say this because it is my opinion, and as a member of the Board it is my duty to have an opinion which if it is approved by any majority of my electors, I will consider it my further duty to attempt to bring about an order of things in accord with the will of that majority.

Now, if you ask me why I hold that opinion, I have only to refer you to the announcement where we may review the curriculum for our present four year course. On the fly leaf you will find provision for operative and prosthetic technique which requires a systematic examination and study of each tooth, of the relation of each to the others, and the relation of all the teeth to the surround-

ing parts. The histology provides for the microscopic examination of all these tissues. Each student is required to carve in vegetable ivory a complete set of teeth of each jaw and to articulate these in their proper occlusion. Where is the preceptor who attempts any such systematic course of instruction? His usefulness was in a day when there was no attempt made at such thorough systematic scientific education. The student learns the form of each tooth by first examining it, feeling it and reading about it. He learns to tell a first molar from a second, and a second from a third, and after doing this he actually reproduces each tooth in a substance similar to tooth structure. The course is so thorough that if the contents of a pulp chamber and canals were shown the student in its original form he could name the tooth from which it came.

Having learned these minute details about the teeth the student in the second year is required to prepare cavities in the teeth he has carved and to fill them with the various materials used. He learns the technique of cavity preparation, of applying rubber dam, clamps, separators, the burnishing of matrices, the making of crowns, and all this is done outside the mouth of a patient in surroundings which reproduce as nearly as possible those of the patient. Has a preceptor time or opportunity or skill to do this work? If not, why not do away with the system.

Toward the end of the second year the student goes into the infirmary as an assistant to one of the seniors. If the senior is any good and the infirmary is conducted as an office is conducted, between that senior and the demonstrators the preceptor has been "cut out of his job," and by the time the sophomore becomes a fourth year man he is more than likely able to teach a graduate of sixteen years standing, the scientific details of filling teeth which were undreamed of, much less taught in dental schools, when such a preceptor "mussed about a bit" in Louisa Street. The teaching of prosthetic dentistry, crown and bridge work and porcelain work is based on exactly similar scientific technical principles so that all there is left for a preceptor to do, is teach the boy some few tricks, what fees to charge and something of dental ethics.

This, however, brings us to a consideration of the conduct of the infirmary which, from the view point of making professional men of dental students, must be turned entirely right side up, as it is now bottom up. It was all right in Louisa Street, where a decent person was ashamed to go and patients were needed for clinical purposes, but it is all wrong in College, where it is admitted many respectable persons are in attendance. As a member of the Board I believe that the infirmary must be conducted on the same broad principles as is a private practice. In private practice a gold filling is worth more than an amalgam filling because it requires greater skill and longer time for insertion, and when well inserted is expected to perform more lasting service than amalgam. It is not because gold is worth so much a sheet and amalgam so much "per oz." But the infirmary does not teach any such principle.

In private practice the treatment of a pulp, or the relieving of an abscess is worth more than a simple gold filling, because it restores to health and usefulness a more extreme condition; because

it brings into play a greater degree of skill and a broader field of knowledge, and deals with a living tissue where the risk and danger of inflicting injury by maltreatment is greatly increased. The operator has assumed a greater degree of responsibility and his fee is proportionately larger. But the infirmary teaches that treatments are free because the cost of material is less. There is no professional education in that. Why do we teach the histology of the teeth, the gums, the glands, connective tissue, the pathology of these parts, the effects of bacteria, of poisons, of remedial agents, of antiseptics, of disinfectants, and immediately opportunity affords to earn our daily bread by the practical application of this acquired knowledge, we are taught to throw the opportunity to the winds and say this is not gold or silver, it cannot be measured or weighed, I cannot therefore ask any fee for it. The principal is wrong, all wrong. Every abscess which is relieved and heals is worth more to the patient than any gold filling, crown or bridge we are able to make. We have not been taught the true ethical and professional value of these things and it is time for a change.

The infirmary must be established on a different basis. It must charge for the value received or it must do charity work. If it sets the standard for fees, in ten years time the dental fees throughout Ontario will be increased. If the teachers and demonstrators are proficient the work done will be as lasting as the service of a licentiate, and if the student gets 80 per cent. for his work the service is worth 80 per cent. of the standard fee for that service, and so on. If a porcelain filling worth \$5 is so poorly made that the student gets only 50 per cent., the patient pays \$2.50.

This, of course, is revolutionary, but the educative value to the student, in my opinion, makes it imperative. It teaches that knowledge and skill are at a premium, that time is of value, that he has no materials to sell, that amalgam is not sold by the filling, that gold fillings are not sold by the sheet, that dentures are not retailed at so much per tooth. It is an incentive to the student to do his best, because it pays best. If he always performs his operations with the best of his ability, at the end of five years his acquired skill is of greater value than at the end of one year. It teaches that a good operation in a short time is worth more than the same operation in a longer time—it requires greater skill and energy and saves the time of the patient.

And having presented to you all these facts, arguments and opinions, where in the name of common sense is the value of the preceptor to the student as a teacher. Of course, students may be of value to some preceptors and as an accessory to the practical business part of professional life, I will not deny the great assistance an ethical preceptor may be to a student, but as a teaching method the system of indentures has out-lived its necessity. All that is needed is a reformation in the conduct of the infirmary and as a member of the Board I am pleased to say that these things will, as far as I am able, surely come to pass. I thank you for your kind attention.

SHOULD ROOT CANALS BE ENLARGED.

BY W. C. GOWAN, CREEMORE, ONT.

Reference to reaming, drilling, scraping, and acid cutting in root canals is so frequently met with in our current literature as to indicate that some dentists seriously attempt to enlarge canals in all cases before filling them. Others solemnly mention schemes of canal enlargement as a remedy for difficulties encountered in small flattened and crooked canals in roots of unknown form, *in situ*. Each refers to his favorite method of canal enlargement as if it were an entirely feasible and harmless operation.

To dispel, if possible, this mischievous delusion let me make a few remarks and one suggestion: After years of study, practice, observation and experiment, I find root canal enlargement *unnecessary* where it is possible, and *impossible* where it seems necessary. This conclusion refers to canals in which pulp extraction and root filling are to be practised for the benefit of the tooth.

It is evident to those who have examined a large number of canals in extracted teeth, and have observed the operation of instruments in them, that a majority of canals can be better cleansed and better filled without enlargement, for the natural surfaces of these canals are smoother than any drill or acid will make them, and also better adopted to the easy sliding of a broach or root filling to the apical foramen.

Knowing that we have no root filling impervious to water or bacteria, it is obvious that the smaller the canal when filled the less will it leak and the less foul matter can it contain, as a result of leakage from either end. These two considerations should alone be sufficient to forbid the enlargement of any reasonably round, straight, or easy canal, or any canal in which a broach can be operated.

But what of the small, crooked, flat, irregular canals, situated as they are in roots of corresponding form? If any man, by the use of drill or acid, thinks he can enlarge these to their apical foramen without anywhere perforating the side of a root, let him try his method in such canals in extracted teeth, where he can see the result.

Let any advocate of reaming, drilling, scraping, or acid cutting in root canals come prepared to a clinic and enlarge from pulp chamber to apical foramen any four out of five canals in extracted teeth which I shall submit to him. We want a few demonstrations of this kind to show what actually happens. It will be admitted, however, that successful performance of the mere mechanical operation in an extracted tooth, with all the advantages of light and position, and certainty as to the form of the root and position of the foramen, does not bespeak a like success in the mouth, where

these advantages are wanting and nothing is known, excepting what is seen or felt at the coronal end of the canal.

The vital phenomena to be reckoned with in a practical case remain to be considered even if no mechanical obstacle prevented a drill, or a broach, wet with sulphuric acid, reaching the apical space through the foramen. So I doubt both the possibility and the wisdom of such an operation.

Interference with the apical tissues and the larger body of root filling necessary in a drilled canal are in themselves objectionable, while a part of every flat canal must remain unclean after all that drilling can do. The weakening of the root, the danger of irritation, perforation, infection, breakage of instrument used, the time and labor lost and the discomfort of the patient, ought surely to be considered before attempting an absurd operation in the mouth which you cannot perform in the laboratory.

Personally, I find no reason to enlarge "easy" canals, and no hope of success in any method proposed for difficult ones, so I do not ream at all. If a canal is too small to admit the finest brooch, and all has been done that cleanliness, drugs and dryness will do, why not fill over it and enjoy the chances in its favor rather than incur the alternative labor, vexation and danger, to make its chances worse?

To the commandment, "Thou shalt remove all pulp," I desire to render obedience, provided, "if thou cans't" is added in amendment. But where the finest broaching methods, assisted with such solvents as papain fail to remove a pulp, it is surely better to let it alone than to blindly drill the course of the canal to its first curve and there perforate the side of the root. And if the canal is too small and crooked to admit a broach how is sulphuric acid to help you?

The driller of canals may rest assured that no operator, however superior to himself, can successfully operate a broach in a crooked canal in which any kind of drilling has been attempted. For the point of any drill, however flexible the shaft, upon arrival at a curve will make a pit in the wall of the canal which a broach point will not pass.

Try any drill made or any sulphuric acid process in a little flat canal found in a crooked root, first noting the position of the apical foramen under a magnifying glass. Push your drill or your acid to a finish, and note what that finish is. Try several canals and observe carefully the result. Split the roots afterwards with a hammer and examine the results of your work from the inside, use your glass.

Whoever will try these simple experiments will need no one to tell him how absurdly futile and dangerous these canal enlargement schemes are.

Proceedings of Dental Societies

THE FORTY-SIXTH ANNUAL MEETING OF THE NORTHERN OHIO DENTAL ASSOCIATION.

The Forty-Sixth Annual Meeting of the Northern Ohio Dental Association will be held June 6th, 7th and 8th, at Gray's Armory, Cleveland, Ohio. This is not only one of the oldest, but is one of the best attended meetings in the country. This year the programme is one of unusual strength and interest. The leading subjects for consideration are:—

1. Humanitarian Methods.
2. Mistakes.
3. Prophylaxis.

Under the first is considered "High Pressure Anaesthesia," by Dr. C. G. Myers, of Cleveland; and "High Pressure Anaesthesia as Compared with Other Pain Preventing Methods," by Dr. D. H. Zeigler, of Cleveland.

Essays under the second group include the "Mistakes of the Country Dentists," by Dr. R. D. Wallace, Scio, Ohio; "Mistakes of the City Dentists," by Dr. F. J. Spargur, Cleveland, Ohio; and "Mistakes in Ethics," by Prof. S. H. Guilford, of Philadelphia, Pa.

The third includes the essays: "Two Sources of Tooth Life and Their Relative Importance," by Dr. D. D. Smith, of Philadelphia, Pa.; and "Diseases of the Peridental Membrane and Treatment," by Dr. J. V. Stahl, of Wooster, Ohio.

The essayists and those who open discussion upon the various papers, have been selected for their particular fitness to handle subjects assigned to them.

Under "Mistakes in Ethics," Dr. Guilford will point out, as only he can, some mistakes that are being made by the profession in the relation of its members to each other, together with the mistakes made in treatment of patients and the public. Great good is expected to result from the presentation of this paper and the discussions that follow. Many false impressions have existed in the past and still exist as to the duties we owe to each other, our patients and the public, and it is expected that the three papers on mistakes will do much to correct this.

Dr. Smith's paper bears upon that all important subject, Prophylaxis; he will bring a patient with him, showing results accomplished by his method of procedure. He will illuminate his paper with models and instruments.

Throughout the entire programme much attention will be given to the study of Humanitarian Methods. (Methods which make it possible to perform dental operations free from pain.)

The Two papers, "Application of High Pressure Anaesthesia" and "High Pressure Anaesthesia as Compared with Other Pain-

"Preventing Methods," and the discussions to follow, will set forth all that is known of importance in this connection.

There will be about fifty clinics selected and arranged to give the knowledge seeking dentists the best post-graduate course that can possibly be obtained in a three-day meeting. One session will be devoted to the study of manufacturers' exhibits. The exhibits this year are to be one of the interesting features of the meeting, and the committee has been promised one of the largest exhibits shown in the country.

All communications pertaining to clinics or exhibits should be addressed to the Corresponding Secretary, Dr. W. G. Ebersole, 800 Schofield Building, Cleveland, Ohio.

Special rate of a fare and a third have been granted on the certificate plan by the Central Passenger Association.

The Committee extend a most cordial invitation to the members of the profession to attend.

Signed,

W. G. EBERSOLE.
GEO. H. WILSON.
VARNEY E. BARNES. } *Executive Committee.*

INTERSTATE DENTAL FRATERNITY.

The Board of Governors of the Interstate Dental Fraternity will convene for the annual business meeting of the Order in Buffalo on Monday July 24th. The annual banquet will occur during the week, and due notice thereof will be sent to the members as soon as arrangements can be made and the exact date fixed. It is hoped that the Fraternity will meet in large numbers on this occasion.

DR. R. M. SANGER

East Orange, N.J., May 4th, 1905.

National Secretary.

BOARD OF DENTAL EXAMINERS FOR BRITISH COLUMBIA.

Lewis Ball, D.D.S., President, Victoria ; R. Ford Verrinder, M.D., D.D.S., Secretary-Treasurer, Victoria ; K. C. MacDonald, D.D.S., Grand Forks ; G. A. MacGuire, D.D.S., Vancouver ; Wm. Mason, D.D.S., Nanaimo.

OFFICERS OF THE LONDON DENTAL SOCIETY.

L. P. Reynolds, D.D.S., London, President ; W. A. Piper, D.D.S., London, Vice-President ; L. H. Dawson, D.D.S., London, Secretary.

EASTERN ONTARIO DENTAL ASSOCIATION.

The regular annual meeting of the Eastern Ontario Dental Association will be held in Windsor Hotel, Ottawa, July 5th, 6th, and 7th.

**OFFICERS OF THE TORONTO DENTAL SOCIETY
ELECTED MAY, 1905.**

Honorary President, Charles E. Pearson ; President, W. G. L. Spaulding ; 1st. Vice-President, G. A. Roberts ; 2nd. Vice-President, E. Cummer ; Secretary, C. A. Kennedy ; Treasurer, Geo. Grieve ; Press Editor, Wallace McLaren.

COLLEGE ANNOUNCEMENT.

The second annual Commencement of the Barnes Dental College, Dental Department of Barnes University, was held Wednesday evening, May 3rd, at the Y. M. C. A. Hall, St. Louis, Mo. The Doctorate address was delivered by Professor E. R. Meng, M.D.

The degree of "Doctor of Dental Surgery" was conferred by the Dean, Burton Lee Thorpe, M.D., D.D.S., upon the following students :

Cleo Park Strawn, St. Louis, Mo. ; Frank Herman Lohmeyer, Springfield, Mo. ; William Asbury Solomon, Palmyra, Ill. ; William Lester Lynes, St. Louis, Mo. ; Thomas Frederick Magers, New London, Iowa. ; Joseph Mort McKim, Jr., Newark, Mo. ; Lawrence Henry O'Brien, Sappington, Mo.

The first honorable mention was awarded to Dr. Cleo Park Strawn, St. Louis, Mo., for the best general examination. The second honorable mention was awarded to William Asbury Solomon, Palmyra, Ill.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The annual meeting of the National Association of Dental Examiners will be held at the Iroquois Hotel, Buffalo, N.Y., commencing at 10 o'clock a.m., Monday, July 24th, 1905, and continuing until adjournment. The rates per day for single rooms will be \$1.50, \$2.00 and \$2.50; \$3.00 and \$4.00 for double rooms; \$3.00 to \$3.50 for rooms with bath. The session will be held in commodious rooms in the hotel. Write early and secure your rooms. Arrangements for members from the East for reduced rates have already been made with fast trains on the Delaware and Lackawana R.R., leaving New York 10 a.m., 6.10 and 8.45 p.m., 2 a.m. It is earnestly requested the secretaries of the boards will communicate at once of change in members' names and address.

CHARLES A. MEEKER, D.D.S.,
Secretary.

INTERNATIONAL DENTAL FEDERATION.

The next annual meeting of the Executive Council of the Fédération Dentaire Internationale will convene in Hanover, Germany, August 7th, 1905, immediately following the annual meeting of the Central-Verein Deutscher Zahnärzte. Announcement of the programme for the meeting and the projected work for the Federation during the present period will shortly be made through the dental journals and through the official bulletin of the Federation.

EDWARD C. KIRK, *Secretary-General.*

Dominion Dental Journal

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A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.
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VOL. XVII.

TORONTO, MAY, 1905.

No. 5.

DENTAL LABORATORIES AGAIN.

In the March issue of the DOMINION DENTAL JOURNAL appeared an editorial concerning dental laboratories, which has caused some criticism. Exception is taken to the general character of the statements. While we do know of more than one or two laboratories to which the remarks in the editorial do not apply, we, at the same time, know quite as many to which they do apply. The object of the editorial was to call the attention of the profession to the fact that they should not patronize laboratories in which work was done for patients. It would not be right to name the laboratories in which work is done for patients; nor could we name those in which we believe it is not done. We cannot see where an injustice is done a laboratory which has stuck to its specialty except, perhaps, as is pointed out by Mr. Patton, in a letter to the editor, that the laboratory man does not generally do more and more illegitimate practice until he is caught, but that it is only the few who do so. We regret, very much, if we have in any way cast a slur upon any laboratory which has not violated the law. Such a thing was far from our intention.

Editorial Notes

THE *Journal of The American Medical Association*, March 18th, 1905, contains an article by G. V. I. Brown, A.B., D.D.S., M.D., C.M., entitled "A System for the Surgical Correction of Hair Lip and Cleft Palate," in which the author describes a method of treatment, accompanied by illustrations and the histories of a large number of successfully treated cases. In his conclusions he says: "It is too often taken for granted that more or less sloughing and pus formation must follow extensive mouth operations, and that surgical asepsis is impossible. In a sense, this must be admitted to be true, owing to natural anatomic obstacles to complete sterilization and the constant exposure to infection from so many sources, but notwithstanding all this, most gratifying results can be secured, and so nearly a true primary union obtained as to make its essential benefit the same even with extensive wound surfaces. With the periosteum stripped from the palate surfaces; incisions reducing circulation to the furthest safe limit; nasal secretions above in contact with raw surface; mouth secretions below, mixed, as often occurs, with gastric regurgitations, and vomited matter; only a comparatively thin veil of tissue bridging the space of the palatal separation of the bones, and at the velum, exposed to destructive influences at every movement of the tongue, or act of swallowing, it goes without saying that only the most rigid adherence to anti-septic surgical care could be effective. Strong solutions of poisonous, or tissue destructive, germicidal agents are necessarily precluded in the mouth. Dilution in the oral fluids renders otherwise effective solutions of practically no benefit. The histologic character of the nasal, oral and pharyngeal mucous membrane surfaces render sterilization extremely difficult, and it has been conclusively proven, that animal fats, dead mucous cells and other surface coats resist even powerful drugs to such an extent as to protect underlying bacteria, while germs on the immediate surface are destroyed. Mechanical cleansing, therefore, is a first necessity, and next to this, frequent use of non-toxic, or mild solutions of otherwise injurious germicidal agents. Preparatory preparation of the field of operation consists in scrubbing membranous, dental and other surfaces, removal or antiseptic care of teeth or roots, and at least temporary stopping of carious tooth cavities. My post-operative sheet anchor is dioxogen,* which gives mechanical cleansing, in setting free the dead mucous cells and destroying the resistant nature of the intervening secretions, while, at the same time, it gives an immediate and powerful effect on bacteria in destroying their vital properties. . . ."

* I use dioxogen because, in my experience, it has proved the most uniformly free from acid of any of the preparations of H_2O_2 , commonly sold as such, and because an impure or a strongly acid solution must necessarily be absolutely prohibited when hourly treatments of the mouths of patients, many of whom are infants, is prescribed.

DENTAL COLLEGE BANQUET.—The graduating class of 1905 of the Dental College held their annual banquet recently at McConkey's, and there was a goodly attendance. The guest of the evening was Dr. W. R. Vrooman, Clyde, N.Y., who, in an excellent speech, extolled the advantages of Canada and the Empire, and the importance of close relations between the United States and the British Empire as a factor in the world's civilization. Dr. Vrooman was secretary of the first Dental College banquet ever held in Canada. This was held at the Rossin House twenty years ago, and the doctor came specially from New York in honor of the occasion. Chairman Bushnell made an excellent toast-master, and among the other speakers of the evening were Messrs. Albert E. Wark, editor of *The Hya Yaka*; Percy J. Copland, Neil Smith, Dean Willmott, Dr. E. Herbert Adams, Dr. Webster, Wm. Wickett, Joe Thompson and Horace Wood.—*Toronto News.*

LECTURERS WANTED.

Applications will be received by the Secretary of the Royal College of Dental Surgeons, 96 College Street, Toronto, until August 1st, 1905, from persons desiring to be appointed to any of the present vacancies on the staff of teachers, viz.: Operative Dentistry and Dental Pathology; Medicine and Surgery; Materia Medica and Therapeutics, and the Demonstratorship of Practical Chemistry and of Practical Metallurgy. For any particulars apply to the Secretary.

Dominion Dental Journal

VOL. XVII.

TORONTO, JUNE, 1905.

No. 6.

Original Communications

ETHICAL RELATIONS.

BY MARK G. MCELHINNEY, L.D.S., D.D.S.

Read before the Ontario Dental Society. March, 1905.

The recognition of ethical relations is the highest fruit of man's intellectual and moral development, and that such should be of slow growth is not surprising. Our material development during the past century has been the greatest known to history. This none denies, but it has been asserted, especially by the opponents of the doctrine of evolution, that man has not increased his mental capacity, his philosophical range and his recognition of ethics to any extent during the historic period. There are many of us who believe that such an opinion cannot bear the light of investigation.

The advance of Science shows that man's capacity has increased both in volume and in power of accurate thought. The application of the findings of science to the region of philosophy, even when failing so far to solve the riddle of the universe, has shown us the errors of the older systems, while the enlightened ethical standards of the advanced thinkers of our day are a vast improvement upon the crude systems of the ancients. It might be time well spent to trace briefly the means by which we have arrived at our present status in ethics. By so doing we shall be able to see what wonderful advances man has made during the historic period.

In the earlier times religion and ethics were one, and were summed up in the duty of the creature toward its creator. Man was for ages the toy of the gods, and existed by their pleasure and good-will alone. He possessed no rights either against his fellows or his creator. In the Hebrew branch of the development of religious thought, and through which our own has been derived we

find that the only ethical relations were toward Deity, with but small reference to man's fellow man.

The teaching of Jesus came with a new light upon the anthropomorphism of the Hebrews. It included a clause hitherto unknown—namely, the brotherhood of man. Of course, in the teaching of Jesus we can trace the influence of the older thought of the farther East, but we must remember that the Buddhistic statement was a negative one, which simply avoided evil, while Jesus taught a positive rule of life, which included not only the avoidance of evil but the seeking after good.

Here begins the real advance of ethical development which would have been a grand one long since had it not been so injuriously hedged about by creeds, dogmas and empty forms. While the influence of Greek philosophy played a large part in modifying the development, I think I can with reason consider Moses and Jesus as the main sources of our ethics.

The ethical system of the past were based upon the sacred writings and traditions of the various races, which though reaching continually towards good, provided no fixed standard of what was the truly good, and showed a condition described by Kipling :

“ The wildest dreams of Kew are the facts of Kalamazoo
And the crimes of Clapham chaste in Martaban.”

When Pilate asked the question “What is Truth?” he voiced the mental attitude of the ages preceding the time of scientific discovery and research. In his day the answer could have been attempted only on the authority of sacred books and traditions, which we know could have rendered many conflicting replies. While we must not for a moment underrate the ethical value of these gropings after truth, for they are the steps of man's ascent, we cannot fail to recognize the better authority of a system based upon the physiological, sociological and psychological needs of man as indicated by the results of modern scientific methods. While, as a bold statement, the golden rule holds precedence for all time, it could apply as a guide only during simple conditions. To make it applicable to the complicated affairs of modern civilized life requires a high development of its range and application, and this is what modern thought is endeavoring to do.

To-day we have a sound basis of scientific reasoning, deduced from the sciences comprising sociology, why we should cease to do evil and learn to do well. The ethical statements of the past are not destroyed or supplanted, but placed upon the solid foundation of man's necessities. Man to-day must do good, not because it is pleasing to God nor because he expects to reap an eternal reward, but because it is the only means by which he can accomplish the preservation of the race in its highest and best form.

Briefly, it has been sufficiently demonstrated by science that to do good is happiness and progress, and to do evil means misery and extinction. Man, by means of the laws of his intellectual and moral nature, must work out his own salvation. A consideration of whence he derived this “ power that makes for righteousness ”

is no part of the present paper, but of its existence wherever derived we can have no doubt.

The general law that those acts which conduce to the welfare of mankind are right and that those which operate to the contrary are wrong, serves as a foundation from which each race, each community, each profession, each trade and each individual must work out the necessary rules for guidance. Nearly every man, even the savage, recognizes to some extent the advantages which accrue from a proper attitude towards his fellows, but to realize that society is analogous to an organism and that the welfare of an organism depends upon the harmonious action of its members, requires a certain degree of culture.

We can readily see that such relations are but crudely recognized in politics because such are so largely in the hands of the uncultured. From this ethical blindness comes the expression that "It's no harm to rob the Government." The uncultured man possesses a limited range of mental vision and no real power of imagination, and consequently fails to perceive that robbing the Government is robbing each and every citizen as truly and criminally as if he had picked their individual pockets.

The professions are composed of persons of varying degrees of culture, and while the average is very much higher than that of the community at large, there are still many in all professions whose culture is too limited to afford them any adequate appreciation of ethical relations. The older professions, having for a long time been more difficult of access, have drawn to themselves the better material with a consequently higher culture, and exhibit a greater cohesion and a more earnest attention to ethics.

In a comparatively new profession, such as our own, it is inevitable that there should be less cohesion and less attention given to ethics. There is no doubt of this fact, which we may admit without shame, since it is the inevitable condition of immaturity, that Dentistry is not so closely welded together as are Law, Medicine and Theology, and as a consequence is not taken so seriously as a whole by the general public. A brief reference to the professions and their relations to society may assist us in giving Dentistry its proper status.

The profession of Law, however it may have been hampered by the enactments of ignorant legislators and doctrinaries, however in some instances it may have descended into mere technicality, however it may have become even the tool of oppression and injustice, still stands in its highest development for righteous transactions between man and man and the ultimate triumph of the cause of justice.

The profession of Theology stands for the moral elevation of mankind, and has in the past more than once stood between man and moral extinction. If, in the midst of modern progress, it has fallen a little behind we trust that it will accommodate itself to its new environment and stand in the future, as in the past, for the highest and best there is in man.

The profession of Letters and the Teaching profession strive for the elevation of the race by culture.

The Engineering professions stand for progress in man's material welfare, his transportation, manufactures, and the development of natural resources.

The profession of Dentistry—What is it? How may we define it and what are its ethical relations? In so far as Dentistry includes the prevention and treatment of disease of the mouth and teeth it is undoubtedly a department of medicine and surgery.

It would be idle to argue that the surgical considerations of the mouth and teeth do not bear as important relations to the general system as do those of the eye, ear and throat. The functional values of the mouth and teeth are the same in kind, and if they differ in degree it is that their relations are more intimate with the highly important physiological functions of digestion and assimilation than are those of the eye, ear and throat.

The prosthetic part of Dentistry, which has no true parallel in the other departments of medicine and surgery, has always been the difficult problem in our professional status. It seems to me that prosthetics constitute a mechanical art which must be allied with Dentistry, because nature provides that the functions of articulation, mastication and salivation can be performed by artificial substitutes. If it were possible to provide artificial ears to hear and glass eyes to see, the departments of the oculist and aurist would possess prosthetic accessories.

It is probable that the future history of Dentistry may show that while the strictly medical and surgical side shall gain strength, increasing knowledge upon the part of the people and more and more skilful treatment of the dental organs on the part of the profession, shall render their complete loss considerably less frequent and the necessity for the prosthetic accessory greatly lessened. Perhaps it is that prosthetics are necessary during the present period of man's evolution, but if the tendency of the race is onward and upward toward a higher and still higher type, we may hope that some time in the future there shall be reached an age when the mechanical art shall not loom so large upon our professional horizon. Until that time it is the duty of the profession to fill the prosthetic requirements to the best of its ability, in the high belief that no one duty toward the welfare of humanity is less worthy than another.

The first ethical relation of any individual is toward himself, for it has been said that if a man is true to himself in the highest sense he cannot be false to others. Reform must begin with the individual and work outward. Some one has remarked, "Reform yourself and there will be one rogue less."

Certainly the first duty of any professional man should not be less than that of any other citizen—to be honest, to be clean and to be kind. As a professional man he should cultivate his powers to their fullest capacity, leaving no stone unturned to make himself able to render the best service. He should carefully study the literature of his profession, avail himself of the privilege of professional societies, and make each operation a stepping stone to a higher attainment in both skill and knowledge.

Since the knowledge which he possesses was won by the labors

of those who went before, and there is no way in which he can pay directly for his privileges, he is in debt to his profession, and the only way in which he can discharge in part this debt is to endeavor to contribute to his fellows and to posterity some usefulness so that they will be the better of his presence.

Thus it becomes the moral duty of each practitioner to connect himself in some way with his professional brethren, and if he has neither the ability nor the self-assurance to take an active part in the proceedings, he can at least show by his presence and good, will that he is alive to his responsibilities and endeavoring to fill them to the best of his power. This is all that the best can do.

The spectacle of a profession, separated by jealousy, weakened by selfishness and dragged down by the incompetent and the vicious, is not conducive to public confidence; while that of a wide front of solid organization, unselfish recognition of common interest and continual striving for progress is likely to win the confidence and appreciation of the whole community.

It is therefore our duty to see to it that our profession is most thoroughly organized, and that our individual actions shall be so ordered that the public cannot withhold from us the respect and consideration due a liberal and learned profession laboring with a conscientious desire to alleviate pain and suffering and thus contribute to the progress and happiness of mankind.

DISCUSSION.

J. R. MITCHELL, L.D.S., D.D.S.

When asked by your Secretary if I would be one of two to open the discussion on Dr. McElhinney's paper on "Ethical Relations," knowing the ability of Dr. McElhinney as an essayist, and the consequent profundity of thought, which I would be expected to discuss, my first impulse was to decline, but on consideration I felt it was my duty to do something towards making this convention a success; and, secondly, I felt assured that a careful perusal of the paper would amply repay me for time spent. This was probably selfish, but I can assure you that I have not been disappointed.

I congratulate Dr. McElhinney on the masterly treatment of the subject. The sentiment of his opening statement proves that he has grasped the importance of the subject.

It would, perhaps, have been better had the essayist said the practice of ethical relations is the highest fruit of man's intellectual and moral development. I believe that many highly educated men recognize the importance of ethical relations, but do not practice them simply through the perverseness or cussedness of their dispositions.

In his recognition of the main sources of our ethics, as coming from Moses and Jesus, the essayist sounds again the immense importance of the subject. The real origin of the ethical relations of man was in the purpose of the Creator, when

He first created man; but owing to the fall of man the redemption became necessary, and hence the revival of our ethical relations as taught by Christ.

Mr. President and Gentlemen, to follow through and thoroughly discuss the various points of Dr. McElhinney's paper would require more time than we can afford to spend at this association. Its discussion would lead to points which every individual must settle for himself or herself, and would give rise to a train of thought, which would amply repay every person present to follow out, when they have time to read and digest the paper under consideration. For this reason I consider that my time will be more profitably spent in following out a few practical ideas suggested to my mind from what the essayist says is the source of our ethics, namely, the teachings of Christ.

What is the greatest and highest thing (shall I say thing, is it not rather state or condition of being) in this world? The answer comes at once, love. Now, love for what? Is it love for God or good? I believe that God is not jealous as we generally accept the term. He desires us to love His creatures as much as the Creator.

Everyone has asked himself the great question of antiquity as of the modern world: What is the *summum bonum* (highest good). We have life before us. Once only can we live it; what is the noblest object of desire, the supreme gift to covet. The answer comes again—love.

From this standpoint I propose to mention what I consider the essential qualities of a truly ethical character. The essayist has said that the first ethical relation of any individual is toward himself, for it has been said that if a man is true to himself he cannot be false to others. What does this mean? Is it not the command, love thy neighbor as thyself? The essentials which make up the truly ethical character are patience, kindness, generosity, humility, courtesy, unselfishness, good temper, and sincerity. I shall deal only with some of these qualities.

Kindness.—Have you ever noticed how much of the greatest lives in this world was spent in doing kind things, in making people happy. There are not many things in this world greater than happiness; and what has been put in our power is the happiness of those about us, and that is largely to be secured by being kind to them. I wonder why it is that we are not all kinder than we are. How easily it is done. How rapid its action. How infallibly it is remembered, and how super-abundantly it is repaid. Let us lose no chance of giving pleasure, we shall pass this way but once.

The next quality is *Generosity*.—A generous man enviieth not. This is love in competition with others. Whenever you attempt a good work you will find other men doing the same kind of work, and probably doing it better. Envy them not. Envy is a feeling of ill-will to those who are in the same line

with ourselves, a spirit of covetousness and detraction; that most despicable and unworthy of all moods, which clouds our soul awaits us on the threshold of every work unless we are fortified against it with the grace of generosity. One thing which we truly need is the large, rich, generous soul which enviieth not.

The next quality is *Courtesy*.—This is love in society. Love in relation to etiquette. Politeness has been defined as love in trifles. Courtesy is said to be love in little things. You can put the most untutored persons into highest society, and if they have a reservoir of love in their hearts they will not behave unseemly.

Carlyle said of Robert Burns, that there was no truer gentleman in Europe than the ploughman poet. This was because he loved everything—the mouse, the daisy, and all things that God had made. You know the meaning of the word gentleman, it means a gentle man. The gentle man in the nature of things cannot do an ungentlemanly thing. The ungentle soul, the inconsiderate, unsympathetic nature, cannot do anything else.

The next essential is *Good Temper*.—We are inclined to look upon bad temper as a very harmless weakness. We speak of it as a mere infirmity of nature, a family failing, a matter of temperament, not a thing to be taken into very serious account in estimating a man's character, and yet the Bible again and again condemns it as one of the most destructive elements in human nature. The peculiarity of bad temper is, that it is the vice of the virtuous. It is often the one blot upon an otherwise noble character. You know men who are all but perfect, and women who would be entirely perfect, but for an easily ruffled, quick-tempered disposition.

The compatibility of ill-temper, with high moral character, is one of the strangest and saddest problems of ethics.

Gentlemen, I am about to make a strong statement: No form of vice, not even drunkenness itself, does more to deteriorate society than bad temper. For embittering life, for breaking up communities, for destroying the most sacred relationship, for devastating homes, for withering up men and women, for taking the bloom off childhood, in short, for sheer gratuitous misery-producing power, this influence stands alone.

You are all familiar with the return of the prodigal son; did you ever view the action of the elder brother from the point of bad temper. He was moral, hard-working, patient, dutiful, but look at him in his temper; this baby sulking outside; look at the effect upon the joy of his father, upon the guests assembled, and upon the prodigal.

What is bad temper made of? Jealousy, uncharity, cruelty, touchiness, doggedness, sullenness. It is not what it is alone, but what it reveals. It is often the bubble escaping to the surface which betrays the rottenness underneath.

A want of patience, a want of kindness, a want of generosity, a want of courtesy, are all shown by the one flash of temper.

How shall we round up such an esthetic character? By practice.

What makes a good cricketer? Practice.

What makes a man a good hockey player? Practice.

What makes a man a good musician? Practice.

What makes a man a good linguist? Practice.

What makes a man a good man? Practice.

If a man does not exercise his arm he develops no biceps muscle; and if a man does not exercise his soul, he acquires no muscle in his soul, no strength of character, no vigor of moral fibre, and the constituents of the ethical character which I have attempted to delineate, are only built up by ceaseless practice.

Mr. President and Gentlemen, this concludes what I can attempt in this short paper of the line of thought suggested by the careful study of the paper under discussion, and the highest compliment I can pay the essayist is to recommend to every one of you to carefully study out and apply some of the thoughts suggested by his excellent paper.

By H. E. EATON, TORONTO.

Mr. President and Gentlemen,—I wish to express my appreciation of the essayist's able presentation of this subject. He has very carefully traced the evolution of ethics, and laid before us a good, sound, and healthy foundation upon which to build. Certainly he has placed the ideal high enough to meet the demand of the most critical. He has given us as the necessary factors for the acquirement of the highest ethical ideal: (1) Individual reform; along the lines of Honesty, Cleanliness, and Kindness; (2) and (3) Organization and Cohesion as a body. With these principles I quite agree. Now, it is for us to decide whether we shall merely listen with interest and enjoyment to this paper and let the matter drop there, or take it up and make it of some practical value to ourselves. I had hoped he would carry the subject a little further, giving it a more definite and practical turn. While it is quite possible that all present may fully agree with the broad principles laid down, I venture to say that in the working out of the minor details of ethical relations, we are at variance with each other; each having his own standards and methods. In the few thoughts I have to present, I shall confine myself to the practical application of the principles laid down in the paper, rather than to any critical discussion of them. We, as a profession, surely have reason to congratulate ourselves upon the progress made in recent years along the line of ethical relations. Yet, in our minor details of organization we are much behind our brethren of the medical profession. For instance:

Are we at one in the matter of rendering service to a patient who is at the time under the care of a brother practitioner? An investigation will show that one man, thinking to do his brother

practitioner a favor, gives the service gratis, while another invariably collects a fee.

In the former case it seems to me, it is misplaced courtesy ; for the simple reason that it is the patient, to whom neither may be specially obligated, and not the practitioner, who benefits by it. The patient has received a service, is willing to pay for it, and it matters little to him to whom he pays.

I am told that it is a rule with the medical men, when a patient comes to their office and receives a service, to collect a fee, even though he may be a patient of another.

Again, in the case of a dentist being absent from his office, asks a brother dentist to attend to his practice. As far as I am aware there is no organized method of doing this work. I believe it is usual for this service to be performed gratis, and I am sure there is no dentist but would willingly give such service to favor his fellow practitioner. But the point is this : In theory the dentist receives the favor, but in reality the patient, who may be almost a perfect stranger to both, is the one who receives the practical favor, because between the two he pays no fee for the service.

I want to ask, Is this principle of getting "something for nothing" a good one for us to encourage in our patients? Does it make for the highest ethical relations between the profession and the public?

In the Ontario Medical Association's code of ethics, Article III., it reads thus : "When a member of the profession shall officiate for another he shall receive regular fees for such attendance, subject to any arrangement which may exist between them."

In this discussion there might also be mentioned the matter of free examination and advice. The free extraction of teeth where dentures are to be inserted, and many other customs which prevail, for what reason it is doubtful if any of us know.

I will leave the discussion at this point, trusting something may come out of the further handling of it that will be along the line of some definite movement toward the perfecting of our ethical organization. I am satisfied the result would be a better understanding between the members and an elevating of the profession in the thought of the public.

(For further discussion see page 206)

REPORT OF THE SIXTEENTH ANNUAL MEETING OF THE ONTARIO DENTAL SOCIETY.

The Sixteenth Annual Meeting of the Ontario Dental Society was held at the Dental College, Toronto, on Monday, Tuesday and Wednesday, March 13th, 14th and 15th, 1905.

OPENING SESSION.

On Monday, March 13th, in the absence of the President, the Honorary President, Dr. R. E. Sparkes, Kingston, took the chair and called the Convention to order at three o'clock p.m.,

and first requested the Secretary to read a telegram which he had received a few minutes previously.

DR. HUME.—The telegram is from Dr. Thornton, our President. It is dated at Linden, Ontario, and reads, "Stalled, but coming later. Full—after dinner." I telephoned the station, and they find the train is off the track, so that Dr. Thornton will not be here until 4.35 or 6.40.

DR. SPARKES.—I am sure we all regret very much the absence of the President. We have also received word from the Vice-President to the effect that he is unable to be on hand, and in their absence I, as Honorary President of the Society, have been asked to conduct the meeting until the President shall appear. On his behalf I would welcome you all to this sixteenth anniversary of our Society, and I am sure the programme that is before us will afford us very much pleasure and profit. I am glad so many have arrived as are here, and we will wish for the safe arrival of those who are stalled. The first order of business is the reading of the minutes of the last annual meeting.

DR. WEBSTER.—I move that the minutes be taken as read.

DR. EATON.—I second the motion.

The Chairman put the motion, which, on a vote having been taken, was declared carried.

DR. SPARKES.—The next order of business is unfinished business. Is there any unfinished business, Mr. Secretary?

DR. HUME.—No unfinished business.

DR. SPARKES.—The next order of business is the selection of the place for holding the next meeting.

DR. HILL.—I move that it be left to the Executive.

DR. MARSHALL.—I second the motion.

The Chairman put the motion, which, on a vote having been taken, was declared carried.

DR. SPARKES.—The next order of business is the appointment of auditors. I would appoint Dr. Gowan and Dr. Slade. The next order of business is the report of committees. Are there any committees to report?

DR. WEBSTER.—There is the Programme Committee.

DR. SECCOMBE.—Mr. Chairman and gentlemen, the Programme Committee has nothing to report. They have gotten up the programme, and it is in your hands, and that is really their report.

DR. McLAUGHLIN.—If Dr. Seccombe, the Secretary of the Committee, were not here, I might say more. The great bulk of the work fell on the Secretary, Dr. Seccombe, and he did his work to the entire satisfaction of the whole Committee, and I am sure it will be to the satisfaction of the whole Society here. In fact, I think the thanks of this Convention are due Dr. Seccombe for, I was going to say, the enormous amount of

work he undertook and carried through in connection with this programme. I am sure the members of the Programme Committee will bear me out in that statement. (Applause.)

DR. SPARKES.—The next is the report of the officers.

DR. HUME.—There is none.

DR. SPARKES.—The Treasurer's report, which would come under this head, will have to be brought on later, as he is engaged in taking fees and enrolling members. The nomination of the officers has been postponed until 9.30 to-night, according to the programme, as you will see. The next order of business, No. 9, is new business. Is there any new business, Mr. Secretary?

DR. HUME.—There is no new business.

DR. SPARKES.—The next order of business, No. 10, is Notices of Motion.

DR. WEBSTER.—Mr. Chairman, in the absence of Dr. Willmott, who is going to make a notice of motion, I desire to give notice of motion that the members of the Programme Committee become members of the Executive Committee, so that an Executive Committee meeting may be held any time before the annual meeting. As it is, at the present time there never can be a quorum of the Executive Committee in Toronto or any place else.

DR. SPARKES.—That will be brought on to-night. The next order of business, No. 11, is the programme, and now we have come to the opening of the programme proper, as you have it in your hands. The first we see is the President's address. The President, as we have been informed by the telegram, has been delayed, or, at least, the train upon which he is coming has been delayed, and he will not be here for some little time yet. We will call, therefore, upon Dr. Johnson to read his paper. Dr. Johnson, of Chicago. (Applause.)

VOICES.—What's the matter with Dr. Johnson? He's all right.

DR. JOHNSON.—Mr. President and gentlemen, the subject of the paper is, "The Phenomena of Susceptibility and Immunity in Dental Caries, as They Affect us in Operative Dentistry." See March issue.

The conclusion of Dr. Johnson's paper was received with prolonged applause.

THE PRESIDENT.—I have very great pleasure in introducing to this Society a gentleman I have known since my student days—a gentleman to whom the profession of dentistry owes a good deal. When we were students there was a certain vulcanizer in the school that was said to be the original or prototype of all the vulcanizers that have ever followed. It was made with a top that screwed on with three set screws. It was felt in some quarters that it was time that it had been superannuated, but from year to year it

made its appearance. In the spring of 1890 it ceased to be, it fell on sleep and it has not been seen in the college since. I am not going to say that the gentleman I am going to introduce to you rivited those three bolts and took and filled the top of the thermometer with soft plaster and screwed it on, but there was a kind of sub-conscious consciousness existing with the students that there was a certain man that did that, and even the students of to-day owe that man something, because that same old vulcanizer would have been in the college yet, otherwise.

I have pleasure in introducing to you Dr. Mark McElhinney, of Ottawa. (Applause.)

DR. MC ELHINNEY.—Mr. President, Ladies and Gentlemen,—When I was asked to contribute a paper on this subject I was somewhat diffident about accepting the responsibility, and I had some further difficulty in choosing a method of handling it, because it is a subject which is as wide, you may say, as the history of man himself, and I was in doubt whether to take a wide view of it or bring it down to particular matters. Well, it is a great deal easier to philosophize on a large basis than it is to get down to solid facts, and that being the line of least resistance I took that line.

I might say I met with a slight misfortune. When I took my glasses out of the case I found that both glasses were gone; but I assure you that I had both glasses on when I wrote the paper.

THE PRESIDENT.—I have two pairs of glasses.

DR. MC ELHINNEY.—Oh, I can see just as well without them. (Laughter.) It happens that the glass that is broken belongs to the good eye. (See page 195.)

THE PRESIDENT.—Both Doctors Hanna and Mitchell who were to have followed in this discussion are absent, but we will ask the Secretary to read Dr. Mitchell's paper. (See page 199.)

THE PRESIDENT.—The paper is now open for general discussion. In Dr. Hanna's absence Dr. Eaton has been asked to say some things on the paper and Dr. Eaton will now discuss this further.

DR. EATON.—Mr. President, Ladies and Gentlemen,—I was asked late yesterday afternoon to get a few thoughts together on this paper in the absence of Dr. Hanna. I trust you will bear with me if the literary quality of it is absent. I wish to express my appreciation of the essayist's able presentation of this subject. He has very carefully traced the evolution of ethics and laid down before us a good, sound and healthy foundation upon which to build, etc. (See page 202.)

THE PRESIDENT.—Now, the subject is open for general discussion and we will be glad to hear from any of you before we go on to the next order of business.

DR. WEBSTER.—Mr. President and Gentlemen,—I believe that emphasis should be given to one or two points in Dr. Eaton's remarks in reference to free examinations. Why should you examine a patient's teeth without a fee? Why should you call it a consultation without a fee? A patient calls upon us, takes our time, gets our knowledge and skill, information and instruction for nothing. If every dentist would make it a practice, as a physician

or lawyer does, of always collecting a fee from those who come into his office seeking his advice he would be looked up to a great deal more and the advice would be very much more valuable to the patient. (Hear, hear.)

One other point in connection with the relations between dentists. A patient comes to me, I have done some operation, we cannot any longer agree ; my patient goes to another dentist. He finds out that I have been operating for that patient. What should be his action ? In the medical profession the fees to the former physician must be arranged for before the other physician can undertake the case ; the former physician must be discharged and he must know that he is discharged. In the same way the dentist should be formally discharged by his patient. They no longer have any professional relations. If we would follow that out we would also stand in better respect with our patients. (Applause.)

DR. GUMMAR.—I think the question of dentists, particularly in their relations to one another, is a question which should engage the attention of our gatherings more than it has done in the past. It has been quite customary in the past, and I presume will be more or less in the future, that when a dentist comes into a community he seeks at once, in a commercial spirit, to rival those who have been in practice there previously, and he does that very often in a way which is unethical, although it does not at the same time transgress the rules of ethics grossly as we generally understand them by advertising rates, but at the same time he seeks to gain a patronage by doing favors, that is, performing operations sometimes gratis in order to secure the good-will of a patient who will then, as it were, refer to him. He often cheapens the price to gain patronage. He does not come to those practitioners who have preceded him and ascertain if there is a tariff of fees in operation there, but he at once gathers what he can and then arranges his fees so as to undercut those who have been in practice previously, and he does that in a private way in his own office. He keeps the rules of ethics, so far as advertising in the newspaper goes, strictly in that regard, but in many other ways he violates the spirit in the manner I have referred to. He seeks in every way to draw in custom, and sometimes by deprecating the work of those which has been proved by experience afterwards to have been in every way equal to his own. If this practitioner were to advertise his works and advertise superiority of ability to others, of course, he would be condemned at once, but how are you going to reach this party when he does it privately in his own office ? How are you going to meet that party ?

The patients whom you have been serving at once learn he is going to perform these operations much cheaper than you have done, and one tells the other and they come in and you cannot reach them. They know your tariff and it is higher than the one that has come in. Now, if the party that has been there previously were to rearrange his rates and advertise them, you would say that is grossly unethical, he is to be condemned. But how is he going to inform the public he is willing to retain his practice against those parties that come in and take it away in that manner ? That is a

question, I think, that should be considered seriously, as I believe it is done frequently in order to gain a practice and get in in that way and destroy the uniformity of the practice ; and after, probably, they have done the damage to those who were there previously they come around after a few years and want to arrange a tariff.

DR. MARTIN.—I would not like the opportunity to go by without expressing my very high opinion of the two papers we have listened to on this subject, those of Dr. McElhinney and Dr. Mitchell. I do not think, in my experience in dentistry, I have listened to two papers of a greater breadth of thought than we have listened to this afternoon. I think, however, if we are to obtain any practical benefit from this question we must get down to the practical, as Dr. Eaton has striven to bring us. I think that the essayists did the proper thing in first directing our thought to the broad question of ethics. I made the remark to Dr. Eaton, as Dr. Mitchell's paper was being read, "That is a whole sermon in itself." I think Dr. Webster has done us a service to-day in drawing our closer attention to some of the aspects of the question that we, as dentists, have to deal with. The attitude of the public towards us is a matter for ourselves to settle. We are responsible for the thought of the laity towards us. If the laity have a lower conception of the profession of dentistry than they have of the older professions, it is to some extent, at least, apart from the newness of our profession, our own fault. We must arrive at some uniformity of practice among ourselves in the question of our dealing with each other's patients, for instance, before the question of ethics can be properly worked out. Of course, in a meeting of this kind, perhaps, it is beating the air to berate the man who does not behave ethically. It is something like the question being asked of a minister belonging to a fashionable church : "Why, how in the world can you dare to scold your parishioners so fiercely on the question of playing golf on Sunday ?" "My dear sir," he says, "I am quite safe in that. The people who play golf on Sunday are not here."

THE PRESIDENT.—I would not get personal, Dr. Martin.
(Laughter.)

DR. MARTIN.—The point I have been trying to get at with this roundabout wording is, that we have no uniformity of practice. In the question of a free examination, or the question of free treatment of each other's patients, or the charging of each other's patients, we have no uniformity of practice. We have no uniformity of practice as regards charging our patients for each individual sitting or treatment. Until we arrive at something definite along these lines, it will be difficult to improve the situation. As far as the question of these two subjects goes, the free examination, or the treatment of each other's patients, and whether we shall charge them or not, I know it is a very vexed question. I would not like to see this subject dropped, even at this late moment, until we have had some little further light on the matter. (Applause.)

DR. EATON.—I would like to hear Dr. Johnson's view on the ethical question between dentists and their patients in Chicago—whether the ethical relations are developed as the medical code of

ethics is developed here. I hope he can give us some light on this matter.

DR. JOHNSON.—Unfortunately I was called out of the room when Dr. McElhinney was reading his paper, I, therefore, am not in a relation to the subject sufficiently to entitle me to a position on the floor upon this matter. The subject is a very broad one, and if I undertook to discuss it I might possibly touch on features of it entirely foreign to those touched on in the paper. I should very much prefer, Mr. President, listening to those who have heard the papers, and hear what may be brought out in that connection. It is discourteous to the author of a paper to divert the trend of thought.

THE PRESIDENT.—While that uniformity of which Dr. Eaton spoke is desirable, we must not lose sight of the democratic spirit of the age. Even the practice of medicine has changed. People are not to-day in the hands of one physician for generation after generation ; they feel free to go and come, to a very great extent, where they please. If a patient were to come to my office, and he or she had never been there before, and I should say, "Is your former dentist's bill paid?" that patient would usually say, "It is none of your business." The same thing is true of a physician. If I go to a physician he will not ask me whether my former physician's bill is paid or not. If a patient comes complaining of a piece of work another dentist has done, then you have a relation to the other dentist, but the question of finding out whether a bill has been paid for former work is out of the question. You might as well say, if I go into a shoe shop to buy a pair of shoes, the shoemaker has a right to ask me, "Are your present shoes paid for?" and I have the right to say, "It is none of your business." It is true also of medicine. When a patient comes to us it is *prima facie* evidence they have already finished with the other dentist.

If I go away for a day or two I have a friend in Chatham that will look after my patients, as far as relieving pain or anything of that kind is concerned. Once in a while a patient may offer to pay and he would say, "No, I am doing this for Dr. Thornton;" but if he inserted a filling he has a right to charge for that.

DR. WEBSTER.—I rather think the President has misunderstood just what I intended. The position that physicians take is this, that until a patient formally discharges his physician the other physician has no right to take that patient. In other words, we have patients who go from physician to physician, from dentist to dentist, getting opinions, getting advice, and perhaps not telling the physician, or not telling the dentist he was formerly with, that he is now treating with some other person. I know patients who are under the care of three dentists at the same time, dodging around between them. We get to know that in practice in our infirmary. Patients come to our infirmary and make appointments and they are at the same time treating with some practitioner in the city. Now, if we could take care and as soon as we find such cases immediately discharge those patients, it would be a proper thing to do, I think.

THE PRESIDENT.—If there is no further discussion I will ask Dr. McElhinney to close the discussion.

DR. MC ELHINNEY.—Mr. President, Ladies and Gentlemen,—I must thank you very much for the manner in which you have received my effort. I might say, by way of explanation, that it was intended to be general, because I hoped it would get down to the particular in the nature of things; and I thought, if I started out with a basis, as I had intended to write further on the matter for my own amusement at any rate, it would afford the first instalment for my own work. In carrying on the study of it further, as I propose, is perhaps a selfish motive. Of course, with the subject matter of Dr. Mitchell's paper I had not of course entered this thing from a theological standpoint at all. The student of those sciences at the present day puts all theologies on exactly the same plans. One has neither more nor less authority than the other. The student of the matter from the outside is often a better judge than the student from the inside. So that perhaps in the study of those matters the one who stands outside of all theologies has a better power to form a judgment than one whose judgment we might say cannot help but be colored by the nature of the glasses he is looking through.

In connection with rendering services to patients the dentist is in somewhat a different position to the physician. When we make an examination and perhaps give certain advice to a small extent we, as a rule, do that as a preliminary to an appointment and the chance of further relations with that patient, while with the physician, and particularly with the lawyer, the advice itself is the valuable part of it, and this patient is looking for perhaps a more material benefit.

As to how to reach these practitioners who have been charged with taking advantage and coming to a town and establishing and endeavoring to undercut the services of older practitioners, there is no way by which we can reach that sort of thing. That is an individual matter. Until the average culture of the profession is beyond the doing of a small act for the sake of money we will always be troubled with that phase. (Applause.) We must be more particular perhaps regarding the material which comes into the profession. (Applause.) With all due respect to the President's regard for the democratic spirit of the age, while I am democratic in theory myself, I doubt if the democracy has been an unqualified success. I never have been able to believe one man is as good as another, and I don't think I ever shall believe it. If one man were not better than another, if one man could not become better than another we would remove one of the greatest incentives to progress. It is by becoming better that we are cheered on. If we can feel we have reached a little mile stone here and there, if it is only a very small one, if we are only one from the foot of the class it is something, and I think that is as it were the balancing element in the ideal democracy. Democracy is a very good political weapon.

As to getting uniformity of practice amongst dentists, we are scattered all over a new country and our towns, even towns of the

same size, are very different and their ideas are different, depending on the source from whence they first drew their population. It is a very different thing to practice in some of these western towns from what it is in an old province like Nova Scotia, where we who were born down there came there a long, long time ago, and with old and settled opinions from the Old Country, settled there under old military law and we are very conservative. I am not an example; I have come west and got a little bit broader perhaps, I hope, than some of those who remain there. But to practice, we will say, in a town in Nova Scotia, must be altogether different from practicing in a town in Western Ontario. Another thing is the difference in the financial welfare of the various people. We can have no uniformity in the matter of fees, because in some places they are totally unable to pay any sort of respectable fee. We are perhaps a little more fortunate in Ottawa, because being among some classes of people that perhaps get their money easily—too easily some of them do I believe—we are in the position of the superior robber, so to speak, and perhaps fare a little better.

As to these patients who are on the list of several dentists, I know several patients who go indiscriminately to my brother and myself, but as we say, it is all in the family, and we do not object. Then, in connection with the gentlemen with whom I have the privilege to be associated in practice, his patients will come to me, some of them quite indiscriminately—and I might wish more of them would—and as he finds no fault with the arrangement I'm sure I wouldn't. So long as the patient does not cause any clashing between the two practitioners, and each man receives the proper reward for what he does, I can conceive there is no moral evil in that whatever.

I again thank you for the attention which you have given me, I feel it is somewhat more than I deserve.

The President called for the Treasurer's report.

DR. JOHNSON.—May I occupy a moment while the treasurer is gone. I must apologize for opening up a subject which has been already closed. I caught two or three remarks in the concluding addresses which relate to the attitude that we should sustain to the patients of other practitioners when they fall into our hands in the absence of their regular dentist. Why, that is the simplest problem to solve in the whole category; and the only way to solve it is to do this, the moment you get a patient under those circumstances immediately treat that patient exactly as you would want your fellow practitioner to treat one of your patients under the same circumstances. (Applause.) If you place yourself in that relation to the question you will not go astray at all. I have been told by my assistant, who stands by my chair all the time, that I am too charitable for other practitioners. She has sometimes said, "Dr. Johnson, you are a fool; you are too charitable for other practitioners." She said, "I have heard you deliberately lie to a patient before you would give a practitioner away." And I think I would do it; I think I should be pardoned for telling that kind of a lie. Not that I should see a patient suffer without relieving that suffering, or not that I should see a patient having an injury upon them

without correcting that injury even if it should be detrimental to a practitioner. But where it is one of these minor matters—and it is almost always a minor matter that makes one man undermine another ; it is these little things that do the harm and injustice to the other practitioners—in those things I would rather mislead a patient for one moment than to destroy the confidence of that patient in that dentist. Sometime ago I had a patient come into my office complaining most bitterly of a plate ; she said the plate did not fit and everything was wrong about it, and went on to tell wherein the plate was at fault. I said, "Madam, before you take the chair let me ask how long has this plate been made?" She said, "Six weeks." I said, "You go right back to the man that made that plate and tell him exactly what you have told me." "Why," she said, "don't you want to take me as a patient?" I said, "Not under those circumstances. If you came in here suffering with pain I would not ask any questions, but you come here under other circumstances." I said, "I must insist that you go back to your dentist and tell him what you have told me ; and," I said, "I don't know who he is, but I will guarantee you this, that that man will do you justice. If, after you have gone to him, he refuses to listen to your argument then come to me and I will consider your case." She said, "Won't you look at this?" I said, "No, I won't. You are not suffering. I am not in duty bound as a professional man to look at that plate ; and," I said, "I don't care to look at it until you have had different relations with your dentist." That same dentist came to me afterwards and said, "I want to thank you." I said, "What for?" He said, "For sending that lady back." I said, "You are the chap, are you?" He said, "That lady came into the office and had a talk with me, and she said things to me that she never told me before in regard to the plate ; after that we had a perfect understanding, and she was so honest about it that I finally made the plate over. If you had examined that plate you would have found defects in it which I knew nothing of. When she came to me and talked the matter over in an honest way I was glad to make the plate over, and she is perfectly satisfied now." That is the kind of attitude we ought to take to these patients. If we come back to the original statement, if we will place ourselves exactly in the position we would want to be placed in by the other practitioner, always think of what you would like the other practitioner to say to your patient under the same circumstances and you will not go very far astray ; and I believe the whole subject of ethics from top to bottom is summed in the one thing of the Golden Rule, to "Do to others as you would like to have others do unto you." (Applause.)

THE PRESIDENT.—The Treasurer is not here, and I think we will mark the ballots at the present time to close the present session.

This session will stand adjourned, and the next session will be at the Queen's Hotel at 8.30 sharp. The convention adjourned at 5.15 p.m.

Proceedings of Dental Societies

THE BRITISH DENTAL ASSOCIATION.—CONGRESS IN SOUTHPORT.

The meetings of the British Dental Association opened in Southport, on Saturday, May 20th. Overnight a pleasant reception had been held by the Liverpool and Manchester Odontological Societies. On Saturday morning a meeting of the Central Board was first held, and afterwards the report of the Central Board was presented to members at the annual meeting.

From this report we give the following extracts:

"The membership of the association still continues to increase. Under the new articles, by which the names of those who have not paid their subscriptions during the current year have to be removed from the list of members, sixteen were unfortunately lost to us, and, in addition to these, ten were removed under the old articles, being in arrear for two years. It may be well to emphasize the point, that these are eligible for remission on payment of their arrears and the current year's subscription. Notwithstanding this loss, and that due to deaths and resignations, the membership of the association now stands at about 1,400, as against 1,340 in August last.

"The Board has to report the formation of a new branch, the Northern Counties Branch, covering the Counties of Northumberland, Cumberland, Westmoreland, and Durham, a district not at present occupied by any branch area. The formation of this branch has already led to the admission of several new members, and it may be hoped that when in active work it will lead to a very considerable accession to our strength."

Letters have been received from the President, Dr. Miller, and the Hon. Secretary, Dr. Kirk, inviting the association to select five colleagues, who shall represent Great Britain in the International Dental Federation, and to designate one of them who shall occupy the position of vice-president, the board referred the whole matter to a sub-committee for consideration and report. After discussion the board adopted the report of the majority, and the following resolution: That the objects of the International Dental Federation being in a general way to promote the organization of bodies that will contribute to the advancement of odontological science throughout the world, the representative board advises the association to send representatives to the International Dental Federation, upon the

understanding that the rules and regulations will be modified in the sense indicated in the letters received from Dr. Miller and Dr. Kirk of March 28th and 8th, respectively.

In the event of this resolution being adopted by the annual general meeting, the board will submit the names of five representatives.

With regard to the balance sheet, the chief point of interest is, perhaps, the very notable increase in the receipt of subscriptions.

Since the meeting at Aberdeen an important judgment has been given in Ireland in a case submitted by the association to test the right of a company to take names or descriptions infringing the clauses of the Dentists' Act. The Master of the Rolls upheld our contentions, and ordered the removal of this company from the register of Joint Stock Companies. According to the statement made in the House of Commons, this decision is under the consideration of the law officers of the crown, and we cannot but feel that this must considerably alter the procedure of the registration of such companies which has been followed hitherto.

The board is glad to report that the Admiralty has now appointed three dentists. However inadequate this may seem, considering the large personnel of the navy, yet the recognition of dentistry by the naval authorities is very welcome, especially to those members of the Navy and Army Committee who have interested themselves very largely in the matter. Regret may be expressed that the army authorities have not been permitted to increase their dental staff to cover the new districts which they have formed. The blame for this, however, must rest entirely with the treasury. The reported failure of the scheme to provide recruits with dentures might have been foreseen when these recruits were expected to contribute largely to the cost of same. It is only fair to state that neither the board nor its committee was ever consulted upon such a scheme by the army authorities. The board feels that the report of the Interdepartmental Committee of the Admiralty and War Office dealing with the teeth of the troops was on the right lines, and that if any permanent improvement is to be expected either in the teeth of recruits or in those of the people generally, then the educational authorities must provide both inspection and treatment for the scholars in the elementary schools—inspection for all, treatment, at least, for those who cannot afford paid help. The board welcome the Departmental Committee appointed by the Board of Education, which *inter alia* is to ascertain and report on what is now being done, and with what result, in respect of medical inspection of children in public elementary schools.

The report was adopted.

RETIRING PRESIDENT'S ADDRESS.

The retiring president, Dr. W. H. Williamson, Aberdeen, opened the proceedings by delivering his valedictory address: He said the year had not been an idle one on the part of the Executive, who had done a great deal of hard work under the very able chairmanship of Mr. Paterson, with the ever-ready assistance of the honorary secretary, Mr. Dolamore. They had many difficulties to contend with, but he had to congratulate the association on its growth and vigor, in spite of them all. The results of its work might not seem adequate to some people, whether inside or outside its membership, but he was satisfied from his experience of its practical working that the British Dental Association achieved what was possible; it did not, and could not effect the impossible. He proceeded: It is not for me, however, to speak further on questions of practice or policy; my appearance here is merely to say farewell officially, and to return my most hearty thanks to all members and to the Executive for their kindness and support during my term of office. There is one other remaining duty, and that is the very pleasant one of welcoming my successor, one who has proved himself a most unselfish and indefatigable worker in all matters connected with the association; certainly none more worthy of any honor that we have in our power to bestow. I have, therefore, great pleasure in calling on Mr. Thomas Gaddes to take the chair. There is just one point I would like to refer to in regard to my term of office, and that is my very great regret at not being able to perform the duty as your official representative—owing to very urgent reasons—of attending the International Dental Congress at St. Louis. I had hoped to have been present to convey the good wishes of our association to our American brothers, and I regret it the more, because there was no official representative whatever from our body at that meeting. It was postponed until the end of August on account of our Aberdeen meeting at the beginning of the month, but the change of date unfortunately was against the attendance of those on this side, coming as it did at the termination of the August holidays. (Applause.)

Dr. Williamson then vacated the chair. The new President was accorded a most enthusiastic reception, and after briefly returning thanks for the hearty greeting, called upon Mr. C. Rees Price, of Glasgow, to move the thanks of the assembly to his predecessor in office.

THE CANADIAN CONTINGENT.

The President observed that he had a simple but pleasant duty to perform. They had with them that day distinguished visitors from abroad. (Applause.) The American Dental Association, at the invitation of their association, nominated six

members to attend the meeting as delegates. Unfortunately the President, Dr. Falconer, was incapable physically owing to ill-health of making the journey, and unfortunately also the other members who were delegated could not be present. But they had evidence of the good intention and cordial feeling of their American brethren towards them by the six delegates being nominated in answer to the desire of their association. (Applause.) The Canadian Dental Association was, however, represented by its President, Dr. Dubeau, and five other colleagues. (Loud applause.) He had a wire from Queenstown that morning that Dr. Willmott would be with them at the dinner with other of their Canadian confreres, Dr. Lantier, and Messrs. Alex. Lemieux, L. N. Lemieux, and Eugene Lemieux. (Applause.) As visitors also they had Dr. Jenkins, of Dresden, and Dr. Platschick, of Paris, and on Sunday they hoped to have Dr. Miller, of Berlin. (Applause.) In the name of the British Dental Association he extended to all delegates and visitors a most cordial welcome. They desired that the delegates and visitors should consider themselves as honorary members of the association during the meetings, and (added the President) "we trust you will feel yourselves as of us. (Applause.) We, furthermore, desire that you, gentlemen, delegates, will carry back to your societies the good-will and the assurance of professional brotherhood of the British Dental Association." (Loud applause.)

Dr. Dubeau, in responding, asked for indulgence for his unfamiliarity with the language. Although a French-Canadian by origin he was a loyal British subject. It was a great pleasure and honor for him to represent the Canadian Dental Association at that meeting of the British Dental Association, and he wished to express gratitude for the kind invitation extended to them. The Canadian Association was quite young, existing only since a few years, but it was full of life. (Applause.) It had been formed with the object of establishing a Dental Council, which would create uniformity of dental qualification and issue a license to practice all over the Dominion. This aim had not been already quite attained, but they were nearing it, and he did not see why, sometime in the future, they should not have a Council or Federation, which should issue a diploma to practice everywhere in the British Empire. (Applause.) Such a thing might seem impossible, but if they considered the progress their profession had made during the last quarter of a century, and the splendid body of practitioners there were all over the Empire, he thought they had no reason to doubt that such a scheme would be accomplished. (Applause.) He thanked them for their kind reception.

The President said it had come as a recommendation to the meeting that Mr. L. Matheson should be appointed to the office of President-elect of the British Dental Association. (Applause.)

He gathered from their applause that they were unanimous on the point. (Renewed applause.)

THE PRESIDENT'S ADDRESS.

The President then delivered his address. After some introductory remarks he said: Evolution has to-day become the homely expression for advancement and progress. And the organized aggregations of the members of a profession, having a common objective, conform with nature's great law of progression from the simple to the complex, from the weak to the more fit—the strong. There are many eligible members of our calling who do not belong to this association; and it seems strange that they should stand aloof from the body that has achieved more for the dental profession than any other society has done. All that might possibly have been done may not have been done, can be taken for granted; but the association is not worse in that respect than Parliament. I maintain most strongly that it is the duty of every registered dentist who conforms with the regulations to belong to this association. At no period more than the present is an organized and united combination of the profession so much needed. This integration for which I plead has this virtue; that both the individual and the profession benefit by the union. Union is strength. Organized combination is an unquestionable force for further advancement, whether it is regarded in its potential form or as an active kinetic energy. Of the many questions relating to the dental profession, which, at the present time, are of interest, I would take advantage of this occasion to refer to some of the more important, having a joint professional and public bearing.

The practitioners of dentistry in this country comprise those who are registered and those who are not. Registration in the Dentists' Register is the State evidence of the right to practice. It is the means provided by the State to enable the public to discriminate between those who are entitled to practise dentistry and those who are not. The only means now of being admitted to the registry is by education, examination, and qualification. Though registration confers the right to use the title "dentist," etc., and to practice, yet the law does not prohibit an unregistered person from practising. This weakness of the law, this absence of legal limitation of practice, has led to the country being flooded with unregistered persons, of whom there is no reliable evidence that they have received any education whatever. Within the area of the North Midland Branch there were in 1899, 125 unregistered persons practising dentistry. In five years (1904) the number had increased to 303. In Leeds alone there were sixteen in 1899, and over forty in 1904. Those figures may fairly be taken to indicate that in the United Kingdom the quacks and evaders of the Dentists' Act have more than

doubled in numbers in the past five years. Thus the quack has flourished and multiplied. He has done so owing to the most regretable state of the law as to practice. This, beyond doubt, deters many from taking the prescribed curriculum, and so lessens the number of students joining the schools, and also lessens the teaching power of the schools (because of the smaller income which can be expended on teachers). Therefore, the number of men who qualify is less than it ought to be; consequently, both the public and the profession suffer. Surely the need for an amendment of the law in this respect is an urgent public necessity; and the public should take their part in bringing the question before their Parliamentary members and candidate.

This question is not producing sufficient qualified persons, brings us face to face with the education problem. If that statement be recognized as a fact, then it is self-evident that no impediment should be placed in the way of students obtaining the dental qualification. The present curriculum must not be extended, nor the examination made more severe. Either factor would undoubtedly tend to further diminish the number who would qualify. At the same time, the student must prove himself efficient and thoroughly capable; therefore any lowering of the standard is to be sternly and strenuously deprecated. Whilst it would not be policy at the present juncture to overload and impede the progress of the average, or even ordinary, student, yet it is only fair that the exceptional man should have opportunities of gaining recognition of his greater abilities. To insist upon one low level for the able and for the less gifted is to repeat that dangerous and pernicious principle of trade unionism, of one rate of pay for the good and bad workmen alike. It is getting up a ladder to distinction having but one rung, and that the bottom one. Right here has the demand for a higher qualification in dentistry a reasonable, just, and necessitous basis. There are two mental conditions that our educational system should provide for—that of the average man and that of the exceptional man. The former provision already exists, the latter ought to be met.

Fortunately and most opportunely, several of the universities have, quite recently, instituted degrees in dentistry. Now, there is an acknowledgment by the highest educational forces of the day that the profession of dentistry is worthy of academic distinction. Nor is this recognition confined to the modern universities, for that ancient and distinguished seat of learning, Trinity College, Dublin, has also in this connection shown her liberal and progressive regime. Notwithstanding a diverse opinion, I, personally—and in common with many of our members who are not strangers to the education of our students nor incapable of good judgment—hail this university status of the profession of dentistry as advantageous, valuable, progressive, and elevating.

With the degrees of at least four universities, and the licenses of four surgical corporations, they are, truly, a multiplicity of qualifications in dentistry. That need not be a disadvantage, nor confusing to the public. It makes the case all the stronger for a State examination—a one portal for registration in the Dentists' Register, and for license to practice. Having a one portal system, any or all of the several dental degrees of universities, and licenses of surgical corporations, could be registrable as additional qualifications, and, mark you, as qualifications in dentistry. There would thus ensue a striving of the more fit and able to attain the higher distinctions, and a stimulus to teachers and schools to meet the inevitable demand for that which is highest and best. That action and reaction must lead to the advancement of dentistry—in theory, in science, and in technique. If this forecast of the advantages of a one portal system, and of higher qualifications in dentistry has a reasonable and practicable basis—and the anticipated results do make for uniformity in qualifying examinations, for progress, and for the advancement of dentistry—then we have in the one portal and State examination an object well worthy of our united energies to attain. We have got university recognition, the next step is a State door as the only entrance to the register.

Reverting to the question of the requirements of the public, the "public" may be divided into three classes: Those able to pay fees; those unable to pay ordinary fees—above the poverty line; those not able to pay—necessitous poor. The requirements of the first-class are well met. The needs of the second-class are most inadequately met; and it is with this class of the population that I would venture to briefly deal. The working class forms a very large majority of our population, and especially so in the great industrial centres. The class may be taken as consisting of persons above the poverty line, and yet unable to pay even low professional fees for proper and skilled dental service. They, for the most part, have no desire to be pauperized, and have the ambition to help themselves. And in this connection it is well to remember that the receipt of charity, more especially State charity, by those capable of working, and for whom there is employment, tends to further degeneration of the recipient. There is great and urgent need for a means of supplying those millions of poor people with reliable dental service. Their requirements can be met by establishing throughout the country Provident Dental Aid Associations, Guilds, or Dispensaries. Institutions of that kind would save many of the hard-working and thrifty poor from falling into the snares of the nefarious quacks. A few such institutions already exist, and are doing, in a small way, good and highly commendable work.

The inauguration of Provident Dental Aid Institutions, at which persons within certain wage limits can by small weekly payments secure skilled dental services by qualified and reputable

practitioners, necessitates rooms equipped in a suitable and sanitary manner. The providing of that essential is a noble and commendable work for the charitable and philanthropic.

For the practical work the self-denying efforts of the dental profession—at least the best of it, as represented by the British Dental Association—can readily be turned in that direction. With the acknowledged and alarming amount of physical degeneracy, and the almost universal prevalence of the decay of the teeth, which is one recognized factor of that degeneracy and of ill-health, this practical means of dealing with the condition is one that I most heartily endorse. I, from this chair, would especially commend it to the serious and favorable consideration of those who have the wherewithal of thus helping the laboring classes to help themselves from the dangers, the physical suffering, the pecuniary loss and descent towards the poverty line which diseases of the teeth, so prevalent amongst them, frequently involve. Our Hon. Secretary, Mr. Dolamore, who gave evidence before the Interdepartmental Committee on Physical Deterioration, says “the condition of the poor is appalling.” To thus help the needy and capable to help themselves is at once a stimulus to thrift and to self-respect. Whether this association, working practically as a central body, can itself undertake the initiative and organization of the many institutions, I do not purpose to discuss. But it is quite within the competence of the branches and sections to do so; and the action of the Leeds and district section in initiating and eventually bringing into existence an institution of the kind in Leeds may be taken as a proof, if not an example, of what local groups of members of this association may accomplish. Viewed from the standpoint of the relation of the profession to public health, I do most emphatically affirm that provident dental aid is one of the most urgent necessities and public duties that the dental profession has to meet. That public duty awaits the profession. Let those who claim to be “the best of the profession” at once take hold of this question and carry it out on ethical lines.

The ravages of dental decay are not confined to adolescents and adults, but children also are victims to an alarming extent. Of children of school age 86 per cent. have carious teeth. That startling fact has been pointed out time and again, and special emphasis will be given to this serious condition by some of the communications which will engage the attention of this meeting. Particular and local interest attaches to the recent data obtained in schools of Liverpool and Manchester.

That the mouth is the first line of defence is generally recognized, indeed, the phrase has become axiomatic. If the first line of defence is diseased and impaired—as it assuredly is when there are present decayed teeth—then the invasion of pathogenic organisms (the microbes of disease) is favored by the weakened defending forces of the body and by the more

suitable breeding-ground, both of which are inseparable from lowered vitality and disease. He quoted Professor Miller's views as follows: "It has been established beyond all question that myriads of micro-organisms are constantly present in the human mouth; and that these, under favorable circumstances, are capable of manifesting an action of the utmost significance upon the local as well as the general health of the patient," and said that general, guarded, and deliberate statement by so eminent and scientific authority as Professor Miller, cannot be too frequently or too forcibly impressed upon the public mind. Furthermore, when it is recognized that, associated with diseased conditions of the mouth, there have arisen such dread affections as pneumonia, diphtheria, septicemia—diseases which stand high in the causation of illness and mortality of children, surely these are cogent *a priori* reasons for giving attention to, and maintaining a healthy condition of the first line of defence. He quoted from an American institution in which children were boarded to show the good results that had followed. Much individual opinion also has been expressed bearing out the facts there tabulated. This is absolutely conclusive as to the importance, the advantage, and the economic value of oral hygiene during school age at least.

If it is the duty of parents and of guardians, private and public, to protect the health of their children, is there not here most forcibly indicated the region where preventive measures are to be exercised, viz., at this first line of defence? And to impart that information and discipline is, and ought to be, the function and duty of the instructors in elementary schools. The Interdepartmental Committee of Physical Deterioration report: "The committee are of opinion that the care of the teeth should receive special attention in the teaching of the elements of hygiene in schools. That daily cleansing of the teeth should be enforced by both parents and teachers, and that systematic inspection of the teeth, eyes, and ears of school children should be undertaken as part of that general medical inspection which has already been recommended. The imparting to children of the principles of hygiene, of right living, and of physiological sins, will undoubtedly enhance the physical and material welfare of the children themselves immediately (of the potential fathers and mothers), and of their descendants of the immed:iate future

The application of the principles of public health during the past fifty years has been followed by a reduced death-rate of from 25.5 per 1,000 in 1854 to 16.2 in 1902, notwithstanding the very large increase of urban communities and the decrease, in many instances, the extinction, of rural districts. Withal, it is true that a large number of the population exist under conditions, general and dental, favorable to ill-health and disease. Disease and poverty are intimately related. Whatever tends to promote public health results in a saving to the individual, to the family

and to the nation. Oral hygiene, or a healthy mouth, as a part of personal hygiene, is of primary importance. It is an application of the great principle of preventive medicine to the first line of defence against disease, and applies to children, to adolescents, and to adults.

Need for amending the law, so that unregistered persons may not habitually practice for gain.

From without there is a demand for qualified men. From within we have to meet that demand.

Whilst aiding the facilities for entering the profession the present standard of education should be maintained.

That to guard against possible competition among qualifying bodies, and consequent lowering of the standard, the one portal to the register and practice ought to be sought for.

In the relation of the profession to the public there is urgent need for a system of enabling the poor to obtain proper and skilled dental service on provident lines.

We advocate doing this for the public; what, on the other hand, are the public going to do for themselves?

Children should be taught in the elementary schools the care of the teeth and oral hygiene.

It is reasonable and economic, and a saving to the individual, to the family, and to the nation, to prevent disease.

THANKS TO THE PRESIDENT.

Mr. Mensall said he rose to propose a vote of thanks to the President for his admirable address. They had listened with deepest interest to all that he had to say on those subjects which were arresting the attention of all thoughtful dentists—such as the need for amending and passing a law as it affected dental practice, the necessity of teaching children in elementary schools the proper care of the teeth, and other subjects. He hoped and believed that the address would stimulate them and be of assistance, in formulating such schemes as would help the dentist to deal successfully with all subjects in which they were interested. He had been associated with the President for twenty-seven years, and he might say his worth and consistency had helped to carry him to the proud position that he occupied that day. He was not only a man of science, but an ardent worker and organizer. No man more thoroughly deserved support than did their President, and no man was more fitted to preside over the association than he. They recognized the great work he had done for the cause they all had at heart, and honor had been conferred upon the association by his acceptance of the office of President. (Applause.)

Mr. Capon, in seconding, said that Dr. Gaddes was to the North Midland branch what the sun was to the earth—he was a source of light. (Applause.) The members were like

the moon—they tried to reflect all the light, or as much of it as they possibly could.

The vote was carried enthusiastically.

The President responded, and said he thanked the members most heartily for their vote of thanks, but he would remind them that Mr. Capon was given to joking. (Laughter and applause.)

The conference then adjourned for lunch.

(To be continued.)

EASTERN ONTARIO DENTAL SOCIETY.

Regular annual meeting, Ottawa, July 5th, 6th and 7th, 1905, at Windsor Hotel.

PROGRAMME.

Wednesday, 8 p.m.—Routine business. Election of officers. Admission of new members, etc.

Thursday, 9.30 a.m.—Paper—Dr. Oliver Martin, Ottawa—“Porcelain Work: High-fusing Electric Furnaces.” Methods of working, followed by clinic practically illustrating the subject.

Paper—Dr. Morrow, Maxville—“Porcelain Work: Low-fusing Jenkins’ Body Gasoline or Gas Furnaces.” Methods of work, etc., followed by clinic to demonstrate practical working.

The Temple-Pattison Co. have arranged for an expert to demonstrate the Jenkins’ furnaces and bodies during the convention.

The remainder of morning for clinics and visiting dental exhibitions.

Thursday, 3 p.m.—Complimentary excursion to Aylmer and Lake Deschenes on *G. B. Greene*, to which members are to invite their wives, their sisters, their cousins and their aunts.

Friday, 9.30 a.m.—Paper—Dr. W. R. Greene, Ottawa.

Paper—Dr. Courtney, Ottawa. Specialist Eye, Ear, Nose and Throat.

Paper—Dr. M. G. McElhinney, Ottawa. Anesthetics, Blue Light, etc.

Friday, 2.30 p.m.—Paper or Clinic—Dr. Gowan, Brockville.

Paper—Dr. Hanna, Kemptville—“Irregular Abutments in Bridge Work; Difficulties and How to Overcome Them.”

Clinic—Dr. Woodrow, Brockville—“Watt’s Crystal Gold,” etc.

Dr. J. C. Bower will be prepared to answer any questions, or give explanation regarding Board, R.C.D.S.

Question Box.—Members will deposit their questions in box by Thursday noon.

The President will appoint a committee Wednesday to answer the questions.

Paper—Dr. R. J. Reade, Toronto—"Decayed Pulp: History, Methods of Treatment," etc.

Those who would like to take the trip from Kingston to Ottawa *via* boat will be heartily welcomed, and all arrangements will be made for them by communicating with any member of the committee, or with the Secretary of the E.O.D.A., A. W. Winnett, D.D.S., Kingston

This boat trip to Ottawa *via* Rideau is one of the most delightful routes in Canada, passing through the famous Rideau Lakes and Canals.

The boats are excellent, being roomy and comfortable, and the cuisine is of the very best.

WESTERN ONTARIO DENTAL SOCIETY.

The Western Ontario Dental Society will meet in Brantford, Ont., June 21st and 22nd, 1905. A very excellent programme has been prepared and sent out to the profession in Western Ontario. District societies, such as the Western Ontario, have been the largest factor in increasing the membership of the Ontario Dental Society, and giving dentistry a wider recognition.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the N.A.D.F. will be held at Buffalo, commencing at 2 p.m., on Thursday, July 27th, 1905. The Executive Committee will meet at 10 a.m. same day. Special business to come before the N.A.D.F. is the consideration of the proposed revision of the constitution and by-laws.

H. B. TILESTON, *Chairman Ex. Committee.*
JOHN I. HART, *Secretary Ex. Committee.*

Dominion Dental Journal

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THE ONTARIO LEGISLATURE AND DENTISTRY

Every year the Ontario Legislature helps some one to get a license to practice dentistry. There is no intention to have a set policy as to who shall get relief from conforming with the regulations, nor what that relief shall be. It seems that there are no regulations no matter of what department that are not broken occasionally. There are cases, I am told, in the Ontario Education Department which have not been decided in accordance with the printed regulations; and from the recent investigations into the awarding of scholarships in the University of Toronto, this institution does not live up to its regulations either. Thus it would seem that the general rules, regulations and statutes are only intended for the general guidance of those coming under their *purvoir*. The Legislature, though it gives a statute to dentistry, medicine, law, pharmacy and surveying which requires that their members shall attain a certain stand-

ard of efficiency, still it holds the right not to allow that standard to be exacted in all cases. The Board of Directors of the Royal College of Dental Surgeons, though it lays down certain rules and regulations for the admission of members to the profession, it breaks them now and again. The Education Department, though it prints and sends out certain regulations governing those wishing to gain admission to certain educational standards violates these rules not infrequently. The authorities of Toronto University, though they set forth what requirements shall be exacted for certain scholarships, change these requirements even after the candidates have completed their tasks. All rules, regulations and statutes are made for the general good, and when, in the opinion of the Board, Senate or Legislature they interfere with what they at that time think right they are not effective.

It may be quite right that there are extenuating circumstances. It may be true that the general law occasionally works a hardship, but when the general law is broken so frequently there must be something wrong with the general law or those administering it. This want of respect for the regulations of their own making soon leads to a condition when they may be changed on almost any pretext. The general good is lost sight of in the importance of the personal good. This juggling with the regulations comes to light sooner or later, and breeds a want of confidence in the laws of our land.

These facts we admit are a shock to the minds of a great number in the dental profession of Ontario, who have been taught in the Public Schools to respect the laws of the land and to believe that the regulations of our educational institutions have always been lived up to. It is an awakening that is necessary, that those in authority may be stimulated to a greater sense of their responsibilities.

In this connection let us cite two cases which have come before the Ontario Legislature during this last session. They will exemplify the injustice and unfairness of special legislation, and the great danger of not keeping to the general law except in very rare instances, and only then after the full publication of the facts. It would seem that the real merits of the cases considered have little bearing on the measure of relief granted. A Dr. Klabflesh, who graduated from Buffalo University Dental Department and been in practice in Ontario for eight years, asked the Legislature to direct the Dental School to admit him to the final examination after attending college one year. This was not granted. The Bill was withdrawn and the appellant granted the

privilege of coming up for final examination, after he had matriculated and attended one year at the R.C.D.S., though a similar bill was granted Dr. Gorman last year, Gorman got his bill because the member who introduced it had done enough good turns for other members in votes and otherwise to get enough votes in return to carry the bill. The justice of the cause in such minor matters is no criterion to the result. It is a matter of trading votes among the members. There are not enough people interested to make the members do otherwise.

The other bill was that of Dr. Crease, of Barrie, whose name has been before the Board and the profession for fully ten years. This man graduated from Philadelphia College about 1892, and since that time practised in New York State and in Barrie, Ont. Some six or seven years ago he attended the R.C.D.S. one term, and wrote on the final examination and failed. He failed in all five times. In fact, the examiners thought he was very incompetent. Notwithstanding these facts the Legislature granted him a license to practice. Now, why give this man a license to practice who is known to be incompetent, and not allow the other candidate even the privilege of coming up for examination. Here is the difference : Mr. Thompson, the member for Centre Simcoe, who introduced the bill, made this case a personal matter. He, in fact, was acting for Dr. Crease. The bill was not introduced until he was sure it would pass. Mr. Thompson, and Mr. Little, of Cardwell, had done enough for the Conservative party so that it made this a party question. The party whip instructed the members what they must do. Mr Duff of West Simcoe, being a party man, both inside and out, added the hear, hear's to the chairman's command to the authorities of the College to give Crease a farcical examination and a diploma. Dr. Pine, the Minister of Education, could not be induced to say a word in support of good educational standards. It was a clear case of give Mr. Thompson this sop and he can be more easily kept in line for greater things. This is the way private privileges are handed out, they are neither just to each other nor to those who comply with the regulations. The trial of such a case before the Private Bills Committee is most unfair. The committee is solicitor, judge and jury with this inequitious condition, that the added jurors are sometimes personally interested, and may be at all times coddled or cudgelled by those interested either inside or outside of the jury. In minor cases the decision of the committee depends largely upon what member introduces the Bill. In such cases the argument of the best counsel in the land is of no consequence ; it is the lobbying before the bill comes up that counts. If the Dental profession

of Ontario wishes to have equal rights extended to all of its members, a law committee should be appointed, whose function should be to look after all dental legislation.

CANADIAN DENTISTS ATTEND THE BRITISH DENTAL ASSOCIATION.

At the recent meeting of the British Dental Association the following Canadians were present: Dr. Eudore Dubeau, Montreal, President of the Canadian Dental Association; Dr. J. B. Willmott, Toronto, Dean of the Royal College of Dental Surgeons of Ontario; Dr. Lentier, Montreal; Dr. Eugene Lemieux, Quebec; Dr. N. L. Lemieux, Quebec, and Dr. Alix. Lemieux, Quebec. At the banquet Dr. Dubeau and Dr. Willmott replied to the toast, "Our Confreres Throughout the World."

STUDENTS WHO PASSED EXAMINATIONS OF ROYAL COLLEGE OF DENTAL SURGEONS.

The results of the recent examinations in the first, second, third and fourth years at the Dental College are as follows:

FRESHMEN CLASS.

Passed in anatomy, materia medica, histology, comparative dental anatomy and bacteriology, physics, operative technic, prosthetic technic, and metallurgy—Lester Bancroft, Clarence Edwin Brooks, W. Anderson Dalrymple, David Ward Duffin, John W. Grainger, Richard Hamilton, Thos. Doyle Higginson, Archie Laughton Johnson, Chas. Little, Arch. Grand MacKenzie, Geo. Herbert McKeown, Wm. Alex. Matheson, Lawrence Imrie Mills, Francis Pollock, Wm. Domonic Ramore, Joseph Stewart, John Edwin Thompson, Louis Vosper.

Passed in intermediate chemistry—C. Clappison, A. L. Johnson, H. M. Morrow, G. J. Steele, L. Vosper.

Passed in operative technic and intermediate surgery—W. A. Black (prevented by illness from writing remainder of examination).

To take further examinations: Anatomy—H. A. Beswick, W. Chalmers, C. C. MacLachlan, H. M. Morrow, B. F. O. Nott, H. W. Reid, H. B. Rickard, J. G. Roberts, G. J. Steele, H. G. Wilkinson, W. B. Wurtz. Materia medica—H. M. Morrow. Histology—H. A. Beswick, W. I. Cheney. Comparative dental anatomy and bacteriology—J. A. Bleakley, J. D. Pettigrew. Metallurgy—H. A. Beswick, J. A. Bleakley, M. R. Billings, R. N. Hill, W. H. McGuirl, J. G. O'Neill, J. D. Pettigrew, H. W. Reid, J. G. Roberts, G. J. Steele. Physics—J. F. Blair, S. Clappison, J. D. Pettigrew, G. J. Steele.

Practical technic (operative)—H. A. Beswick, Chas. Lane, W. H. McGuirl, J. D. Pettigrew, Chas. Somers.

Practical technic (prosthetic)—Lester Bancroft, Harold A. Beswick, John Freeman Blair, Joseph Arnold Bleakley, Maurice Rogers Billings, Clarence Edwin Brooks, Wm. Chalmers, Wm. Lough Cheney, Spencer Clappison, Richard Hamilton, Archie Laughton Johnson, Chas. Lane, Wm. Henry McGuirl, Geo. Herbert McKeown, Wm. Alex. Mathieson, John Douglas Pettigrew, Francis Pollock, Wm. Domonic Ramore, Chas. Somers, Gilmour Johnson Steele, Louis Vosper, Wilmot B. Wurtz.

SOPHOMORE CLASS.

Passed in anatomy, chemistry, operative dentistry, prosthetic dentistry, and therapeutics—Richard Morris Chambers, Jos. Clarence Crawford, David Henry Dow, James Arthur Drummond, Horace Fawcett Goodfellow, John Thomas Grassie, G. W. Howden, Vivian Clifford Marshall, Robert James Mumford, Wm. J. Sanders, Willmott Benson Steed.

Passed in histology—W. B. Daynard.

Passed in materia medica—W. J. Sanders.

Passed in freshman technic—A. D. Childerhose, W. H. Daynard, D. H. Dow, H. F. Goodfellow, J. T. Grassie, G. D. Howden, F. F. McIntyre, W. H. Steed, W. B. Sanders.

To take further examinations: Therapeutics—E. S. Ball, L. A. W. Bannerman, A. J. Martin, F. E. Warriner. Materia medica—L. A. Bannerman, F. F. McIntyre. Physics—K. E. Halnan. Anatomy paper and dissection of head and neck—E. S. Ball, L. A. Bannerman, C. D. Bricker, B. E. Brownlee,

W. B. Daynard, R. M. Graham, K. E. Halnan, A. H. Hertel, A. W. Lindsay, L. A. Maxwell, A. W. Muir, A. E. Proctor, F. E. Warriner. Anatomy (dissection)—A. J. Martin. Technic (operative)—Ball, Bricker, Bannerman, Childerhose, McMahon, C. W. McIntyre, Marshall, Martin. Technic (prosthetic)—Ball, Bricker, Brownlee, Childerhose, Daynard, Drummond, Goodfellow, Graham, Halnan, Lindsay, C. W. McIntyre, F. F. McIntyre, McMahon, Marshall, Warriner. Technic (bridge work)—C. W. McIntyre. Technic (freshman)—Ball, Bannerman, Bricker, C. W. McIntyre, McMahon.

JUNIOR YEAR.

Passed in all subjects—E. F. Risdon, W. C. Smith.

SENIOR CLASS.

P. J. Coupland, N. Smith, E. R. Zimmerman, G. H. Holmes, E. M. Fulton, J. W. Coram, H. M. Wilkinson, W. C. Wickett, E. J. Hambly, W. J. Bushnell, W. H. Caverhill, J. M. Abbott, W. Bonney, H. H. Kilpatrick, W. J. Garland, F. C. Husband, F. W. How, A. E. Wark, G. H. Bray, W. C. Macartney, D. A. Callum, H. E. Elliott, J. B. Lundy, H. H. Kirby, W. T. Jeffs, J. L. Anderson, J. F. Grant, D. D. Wilson, A. M. Weldon, H. W. Anderson, J. F. Taylor, F. W. Gordon, C. C. Nash, H. Wood, G. A. M. Adams, R. M. Large, A. W. Forbes, J. R. Hand, L. J. Fasken, C. J. Jackson, H. A. Nesbitt, S. M. Thomas, E. J. Woods, J. A. Thompson, J. M. Wilson, S. Eckel, E. A. Hill, J. F. McDonald, H. M. Kinsman, C. L. Huffman, J. D. Dillaine, G. H. Cook, H. V. Pogue, W. J. Lea, H. B. Ward, H. J. Hodgins, W. J. Cameron, G. A. McDonald, R. W. Hull, G. C. Phillips, E. H. Henry, J. H. Gorman.

Editorial Notes

LAW AGAINST OWNING OR MANAGING OFFICE UNCONSTITUTIONAL.

The Supreme Court of Washington holds, in the case of State *vs.* Brown, of considerable importance, in principle, to the medical profession, that the police power of the state does not authorize the enactment of a statute requiring examination by and license from a dental board before one may "own, run, or manage" a dental office. It says that it is solicitude for the physical well-being of the public, or that portion that may need dentistry work, which justifies that part of the statute providing for the examination and licensing of those who desire to "treat diseases or lesions of the human teeth or jaws, or to correct malpositions thereof." To perform such work with safety and with proper regard for health and comfort, the operator must possess technical knowledge and skill peculiar to the study and practice of dentistry. Can the same be said of one desiring to own, run, or manage a dental office? The court thinks not. To own and run property, it says, is a natural right, and one which may be restricted only for reasons of public policy, clearly discernible. To hold this portion of the statute valid would be to make possible conditions which were never designed to exist. To illustrate: Suppose a man thoroughly qualified and legally licensed as a dentist should die, leaving a perfectly and completely equipped dental office to his widow, who knew nothing of dentistry and was incapable of securing a license. By continuing to own this property any appreciable time she would become liable to prosecution under this part of the statute. Can the police or any other power be constitutionally invoked to produce such a result? The court is led to believe not. Carry the illustration a little further: The widow, not being able to sell the dental office to advantage, decides to hire competent and legally licensed dentists to treat patrons of the office, and undertakes the management herself—paying bills, collecting accounts, arranging credits, making appointments, and doing other acts necessary to the supervision and control of the business affairs of the concern. Then she becomes a criminal, if this portion of the statute have virtue, because she has managed a dental office. And yet it will scarcely be contended that any of these acts injuriously affect "the health, good order, morals, peace, or safety" of society, or menace "the lives, limbs, health, comfort quiet, or property" of the patients treated in such office. Many similar illustrations will readily occur to the mind given to the contemplation of the natural results reasonably to be anticipated under the operation of such a statute. Should the owner or manager hire operators not legally qualified, or should they participate in the treatment or operations mentioned in the other portion of the statute, they would, of course,

be amenable to and punishable under those provisions. But the court is unable to say or perceive that the health, moral, or physical welfare of the public, or any of the personal or property rights of its individuals, are endangered by the ownership and management of a dental office, so long as those employed therein to do the actual dentistry work are qualified and licensed as by law required.
—From *Jour. Amer. Med. Assoc.*

THE NEW SOUTH WALES DENTAL ASSOCIATION.

THE New South Wales Dental Association has recently obtained the approval of the Education Department to a proposal that the teeth of public school children should be periodically inspected. This examination was entered upon at the Plunkett Street School. Each scholar was given a ticket for the information of his parents as to how many teeth required attention. In cases where parents are unable to pay to have teeth attended to, an appointment can be made for them at the Dental Hospital.

LECTURERS WANTED.

Applications will be received by the Secretary of the Royal College of Dental Surgeons, 96 College Street, Toronto, until August 1st, 1905, from persons desiring to be appointed to any of the present vacancies on the staff of teachers, viz.: Operative Dentistry and Dental Pathology ; Medicine and Surgery ; Materia Medica and Therapeutics, and the Demonstratorship of Practical Chemistry and of Practical Metallurgy. For any particulars apply to the Secretary.

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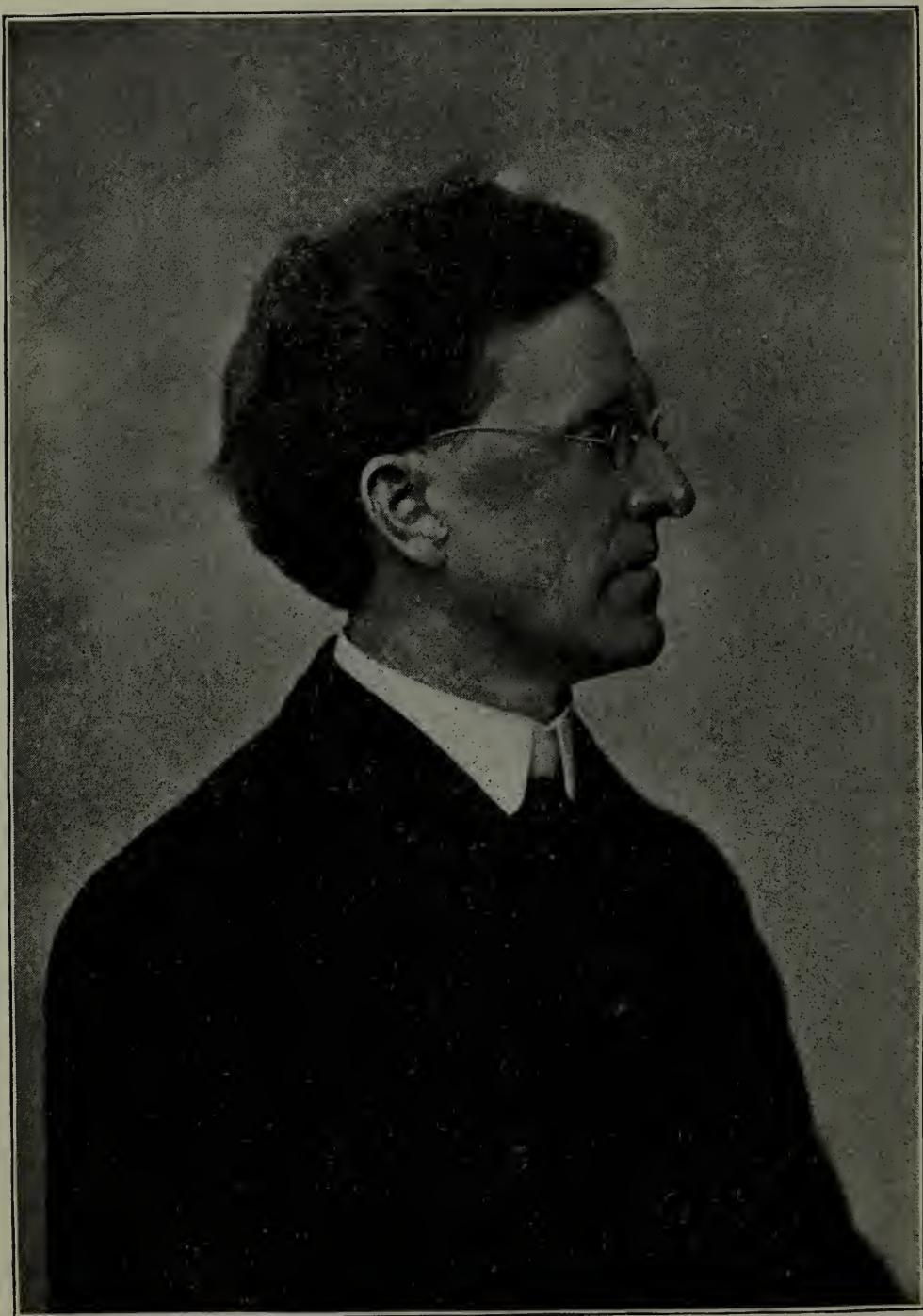
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DR. A. W. THORNTON, CHATHAM, ONT.

President of the Ontario Dental Society 1904-5.

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Original Communications

PRESIDENT'S ADDRESS.

BY G. A. BENTLEY, LONDON.

Delivered to the members of the Western Ontario Dental Association.

Fellow members of the Western Ontario Dental Association,—I am very sorry indeed that Dr. Mills was unable to continue as President of our Association. His resignation was sent to the Secretary last February, and I, as Vice-President, was forced to assume the responsibilities of his office.

It is two years since our last meeting, no meeting being held last year on account of the meeting of the Canadian Dental Association in Toronto. The officers and executive have done their best to provide an interesting programme. We intended having the programme sent out earlier, but the fault was not with the Secretary, but with the members of the profession who delayed answering correspondence, thus putting the Secretary back with his work. If the members would answer promptly any communications from the Secretary it would greatly facilitate his work.

I hope that the members will enter heartily into the discussion of the papers and make the meeting a success.

A progressive dental society does not depend upon large numbers, but relies upon members who will work in harmony, who are willing to devote a certain amount of their time for the benefit and advancement of their chosen profession, so that the world at large and the members of other professions may see that we are worthy of being classed as one of the learned professions.

The men who attend our conventions are usually the best and most progressive men in the profession, and I think they compare favorably with the men of any profession. We meet together, discuss the papers read, see clinics, talk over past experience, form plans for the future, have a jolly time and return to our offices

feeling that we are better equipped, both intellectually and physically, to give our patients faithful service.

Local societies such as this give those of us who are not orators a chance to discuss matters of interest to us, so that when we attend larger conventions we are able to take part in the discussions there to better advantage.

In these days of "Real Painless Dental Parlors" and "Grand stand" dentists, it is becoming more necessary every day that we who are honest in our endeavors to serve the public in the dental profession should work together and uphold one another in counteracting the influences of the fakirs who are doing all they can to lower the standard of our profession and make "tooth carpenters" of us instead of professional gentlemen. My duty to my patient is to give the best service possible, my one thought being "How much good can I accomplish, how much comfort can I afford the sufferer?" Many of those outside the profession ask why dentists do not advertise. The essence of the advertisement is bragging; professional men do not boast that they have more skill than their professional brothers. If he has his work will prove it and it will be recognized, while his boasting would be distasteful and degrading.

Let us then be professional and we will have the satisfaction of feeling that we have not only the good-will of our brother dentists but that our patients will learn that they can safely trust themselves and their children in our care, with confidence in our integrity and faith in our skill.

The social part of our conventions is an important part. Confined as dentists are it is necessary that we have some recreation, and in what better way can we take it than in meeting our fellow practitioners and spending a few hours free from business cares? I hope that this, our fourth meeting, will be the best ever held, and that we may all have reason to remember with pleasure the meeting with the dentists of Brantford.

PORCELAIN INLAY.

By W. A. PIPER, LONDON.

Read before the Western Ontario Dental Association.

There is probably no subject in dentistry so much to the front at present as porcelain. Its use for the restoration of decayed and fractured teeth is discussed at all dental meetings and numerous articles have been written on the subject. No need to argue for its acceptance or defence for there is a field for porcelain inlay as well as for gold, amalgam and cement. Cases are so often met where porcelain, as a filling, is so far ahead of anything else for the restoration of tooth structure, that it is imperative for the progressive dentist to possess the skill necessary to properly insert a porcelain filling.

It is not my intention to discuss the merits of the different materials, that is a matter which concerns the individual worker. Good results can be obtained with either low or high fusing bodies, this paper dealing with the latter.

There may be some here who have done little or no porcelain work and to those this paper is particularly addressed. Let me say to you, begin at your earliest convenience. There is nothing in dentistry more interesting and fascinating than the making of a porcelain inlay. If you are wise in selecting your case, careful in detail, you will soon be proficient in this important and popular work.

When porcelain was first introduced it was for æsthetic reasons, as it made possible a restoration of teeth without a display of gold. But during recent years it has been demonstrated that teeth that were uncomfortable under metal fillings and sensitive to thermal changes, are perfectly comfortable under a porcelain filling; thus by the judicious use of porcelain many pulps may be kept alive that would otherwise have to be destroyed or would die under metal fillings. Let me say just here that cleanliness is absolutely necessary to success in inlay work. Clean slab, bright spatula and suitable surroundings.

While porcelain in the hands of experts has a very large range, beginners should confine themselves to the anterior teeth. Porcelain may be used in nearly all labial cavities in the ten anterior teeth in either upper or lower jaw. Simple proximal cavities in the incisors are readily filled if sufficient space has been obtained, but contours present greater difficulties.

In the preparation of the cavity all decay must be removed, using spoon excavators and round burs, until sound enamel is reached. There must be no under cuts or it will be impossible to remove matrix, and if any should exist after decay has been removed, they must be filled with cement and the cavity reshaped as if no such condition existed. While the cavity must be larger at the orifice than the interior, do not make it shallow or saucer-shaped as it is difficult to retain an inlay in a cavity so formed. The marginal outline should be symmetrical and artistic; the surrounding walls should flare out as they approach the enamel surface and be brought to a knife edge with the outer plane of the tooth. The margin must be well defined and smoothly polished. This is best accomplished by using round burs, small gem points in cutting and sand paper and cuttle-fish discs, and Arkansas stone points for finishing. In approximal cavities in anterior teeth extending to the occlusal edge the palatal wall should be cut in excess of the labial as this wall gives additional support to resist the outward force exerted in mastication. In such cavities a broad base should be made which is a seat for the filling. A form of seat must be made in all cavities, generally in the form of a triangle, in which the filling will rest firmly and which prevents it from slipping out of place when setting it.

In approximal cavities sufficient space must be obtained, which means more than would be required for a gold filling, as the matrix must be free to come away without any danger of changing its

shape; in labial cavities gutta-percha packed in cavity or cement on absorbent cotton will press the gum back.

The cavity being prepared, say in central incisor, involving incisal edge, take a piece of platinum one one-thousandth of an inch in thickness. Do not be afraid of the platinum, have the piece large enough to extend well beyond all the margins of the cavity. Now take a piece of spunk or pellett of cotton, wet it and press platinum into cavity, using round burnisher or round-nose pliers; if carefully done the matrix can be carried to the bottom of the cavity without seriously tearing the platinum. Now, with a hard rolled piece of cotton, gently wipe the curled margins of the matrix back toward the cavity margins, but make no attempt yet to burnish. The idea is first to get the matrix to fit the bottom of the cavity. Now add additional pieces until the cavity is filled full of cotton, using considerable pressure with the burnisher, then remove piece by piece and you will find the margin quite well defined.

Before replacing it in the cavity trim the cervical margin well away so that it will not press around the gum. Now, with the matrix in the cavity, take a piece of twilled tape wide enough to take in all the margins, and draw it in a direction that will cause it to lap all the margins at the same time. This distributes the folds around the surface of the tooth and prevents buckling badly in any one place.

Remove matrix and anneal, and if necessary trim, but leave as much platinum as possible to assist in the next step which is to hold the matrix in cavity with the fingers, and burnish out the wrinkles, and giving the matrix close adaptation at every point, always burnishing from margin toward the centre. Then with heavy piece of rubber dam drawn tightly over margins, burnish over the rubber.

Care should be taken to avoid, as far as possible, tearing the matrix; if it is not too large a rend it will bridge over if the body be not used too wet.

Platinum should be annealed at least three times. First, before using; second, after first burnishing; third, preparatory to final treatment, which should consist only of packing spunk in the walls of the cavity. If any burnishing with instruments is attempted, prior to the final removal of matrix, it will be found that it will spring. This is specially true of compound proximo-incisal cavities.

To remove matrix after final burnishing, gently tease it out with fine exploring point, being very careful not to change the form.

Now comes the matter of color, and in this is called forth our artistic sense and nice discrimination in discerning shades and colors. Dr. Reave's system is to build up the filling in layers. If you examine the tooth carefully you will find that it has two or three colors. This can only be done by baking the different colors in layers. It may seem almost impossible at first to see these different colors in a tooth, but with practice you will easily discern them. Let us take a central incisor, you

will probably find that at the neck of the tooth it is yellow, about the middle third there is grey underlying the yellow, and, that the occlusial third finishes off in a gray or blue over gray. Now, one solid color here would not blend at all, and from an artistic point would be a failure.

The different shades of any one color are produced by the depth of layer. So to produce your fillings with underlying colors, bake colors in layers; baking each separately, varying the depth of the layer according to the color required. When you have built up to nearly full contour, lay on a neutral color or enamel and the finished filling will show the underlying colors reflecting through the enamel.

Building up a filling may be briefly described as follows:—The first baking generally forms about one-third of the filling, and generally of yellow foundation body, which fuses at a higher degree of heat than the material of which the rest of the filling is composed. After this the other colors are added, yellow, gray or blue, in their respective places, allowing them just to blend together by gentle agitation. When this is baked the shrinkage will require that additional colors of perhaps yellow and gray, followed by a neutral be added. Where deep colors are required they may be obtained by using primary colors.

In contour work, it is well to try inlay in the tooth before stripping off the platinum; when, if too full, it may be ground off and reglazed, or, if required, more porcelain added. After the platinum has been stripped off, the cavity side of the filling is etched with hydrofluoric acid, or made rough with small diamond drill. It is now ready to set. It must be set under pressure. When possible put on the rubber dam, have wedges of orange-wood prepared. Mix cement to creamy consistency, cover the entire surface of the cavity, gently press filling to place, being sure that it is in place, and at once insert the wedge to hold with firm and steady pressure. Allow thirty minutes for crystallization before removal of dam. The surplus cement may now be trimmed off, and if work has been properly done, it is finished. Where it is not possible to use rubber dam, flow hot paraffine over entire surface, to protect it from the saliva.

In small fillings, it is well to mark them, say with a touch of ink, so that when the cement is mixed and placed in cavity, you may be able to pick up the filling and place it at once in the cavity, as there is no time to study which way it goes in. It is well to have the filling a little lighter than the tooth as the cement will darken the filling somewhat. When the filling is finished, and before setting it, let the patient see it in the cavity; for, with the saliva on the tooth it can hardly be detected, and the patient is usually much pleased. First impressions are lasting, and if you show the patient the filling only after being set, then darker in color and a line of cement quite apparent, the effect would not be so pleasing. In a few days the line disappears and the filling blends with the tooth and looks very natural.

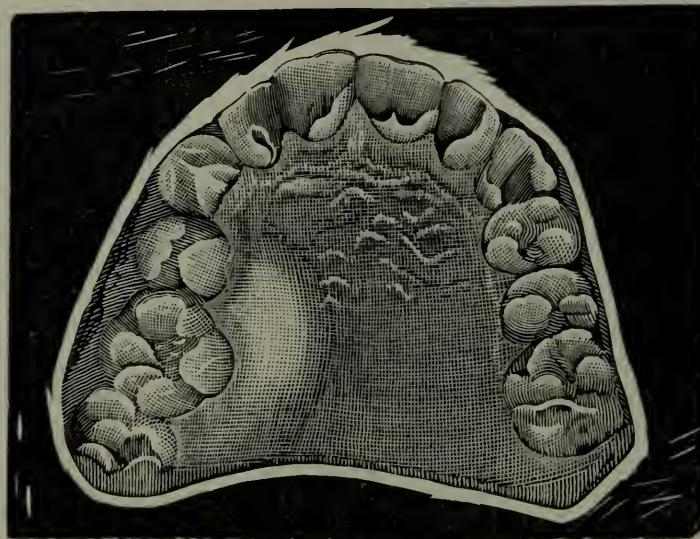
There is much more that could be said, but I hope this paper may stimulate some to enter into the work and to those engaged in it a still more extended use of porcelain.

PREMATURE EXTRACTION OF TEMPORARY MOLARS.

BY ARTHUR W. SMITH, L.D.S., SIMCOE, ONT.

A case vividly illustrating the harmful and unnecessary practice of extracting the temporary molars previous to the eruption of the first permanent molar recently came under the writer's notice. The case is interesting and perhaps rare, but shows what can occur from the thoughtless and premature extraction of the temporary teeth.

Last month a schoolboy, age 14, came to the office complaining of pain in upper right lateral. Examination failed to detect any cause, either local or reflex, except a slight redness over the lateral. Being busy the gum in that region was painted with aconite and iodine and the patient told to report next day. He came before his appointed hour as the pain had been steadily increasing ever



since and was becoming intense. A further careful examination showed both the lateral and central very sore, gum highly inflamed, central slightly elongated. Also a considerable bulge in palatal region of bicuspid and first permanent molar, only one bicuspid being between molar and cuspid.

The conclusion was arrived at that the first permanent molar had taken the place of the second bicuspid (caused by the temporary molar having been extracted some time previously), leaving the second bicuspid impacted. In its struggle to erupt it was crowding all the teeth close together (one could not pass anything between them) and strangulating the pulps of central and lateral.

As the M.D. who has an x-ray machine was out of town, and the pain becoming unbearable, it was decided to extract the bicuspid at once. This was followed by great relief, and after a few hours the lateral and central were tapped. A large flow of blood and pus came from the lateral and the central's pulp was so

badly congested that its recovery would have been doubtful. It was removed by pressure anesthesia, and both teeth treated and filled.

The central has returned to its normal position and the locked bicuspid is already appearing and looks as though it will fill the space of the one which was extracted.

The peculiar point is that the cuspid and bicuspid were not affected in the least.

The cut gives a faint idea of the elongated central and the bulge on palate near molar and bicuspid.

SPEECHES DELIVERED AT BANQUET OF ONTARIO
DENTAL SOCIETY, QUEEN'S HOTEL, TORONTO,
TUESDAY EVENING, MARCH 14, 1905.

At 10.20 p.m. Dr. W. C. Trotter, who acted as toastmaster, rose, and after expressing his thanks and that of the Committee for the large number of members and friends in attendance at the banquet, and after reading a communication from Dr. Brophy, of Chicago, regretting his inability to be present, he called upon Dr. Hart for a vocal selection, to which Dr. Hart responded with "Long Live the King," which was received with hearty applause.

DR. TROTTER.—I cannot thank Dr. Hart too much for favoring us with this song to-night. It is one of the features of the Ontario Dental Society Banquet, that every one looks forward to, to hear Dr. Hart sing. I can also thank him, because it is my privilege to-night to propose the toast to our Most Gracious Sovereign King Edward VII., and I think Dr. Hart has helped me out with his song. I do not think it is necessary for me to go to any length in expatiating on the fine qualities of our King. I think he is the most popular sovereign in the world to-day, probably with the exception of the Emperor of Japan. I will ask you to drink with me the health of our King; and may his image ever be in our pockets.

After the toast had been given, the guests joined in singing "God Save the King."

DR. TROTTER.—Dr. Cummar has been kind enough to bring with him to-night a friend, Mr. Corner, who is going to favor us with a violin solo.

Mr. Corner rendered very acceptably a violin solo, which was received with prolonged applause, to which he responded with an encore.

DR. TROTTER.—The next toast on the list is "Canada and the Empire." I would call upon Dr. Hudson to propose this toast.

DR. HUDSON.—Mr. Chairman and Gentlemen,—This toast which I am asked to propose to-night is in many respects, I think, the hardest toast upon the list to speak to, because it is the most serious toast.

In speaking to this toast we have been wont to listen to beautiful polished sentences from our orators as to the greatness of our country ; beautifully rounded sentences as to the rolling prairies and broad acres of this great country of ours ; our beautiful rivers and lakes and streams and our rich resources. But I propose to speak for a few minutes, and a few minutes only, on another aspect of this question of Canada and the Empire. We have become to-day, gentlemen, a nation. There was a time when we were not a nation, we were simply a colony of this great Empire. But to-day we are greater and more than a colony, we are a nation—a nation in every sense of the word. My Grit friends will pardon the allusion that the genial statesman who now presides over our destinies himself said he had made Canada a nation. We will give him credit for taking part in the making of Canada a nation, but there were others no doubt who contributed in a great measure to this end. But at any rate Canada is to-day a nation, and across the water in the Mother Country the live question there before them is, How shall we treat this new nation that has been born ? Formerly the subject was not thought of. Canada was ruled from the Colonial Office in Downing Street, but to-day the whole country is troubled over the question, How shall we treat the new nation that has been born ? In the olden days the Mother Country nourished us as an infant, as it were —nourished us and took care of us, our infant industries and our resources, when we were a little people away down by the sea, when there was a little settlement at Quebec, and another at Montreal, and another down here in Ontario, and perhaps one away out on the Western Coast of the Hudson Bay. In those days the Mother Country nourished us and protected us, and guarded the little settlement we had, and sent her soldiers here into the land to look after us that no enemy encroached upon our shores ; and once in a while, when she got into difficulties and disputes with the other nations, she did not mind giving away a little slice of our territory here and there. It was one way of settling troublesome and diplomatic questions. We never made any very strenuous objection. At last there came a time when we began to realize we were a nation, when we did object to this giving away of our territory. It reminded me of a story I read in the paper the other day of an old Scotch minister who had a very keen sense of the ridiculous —Scotch ministers as a rule do not have that, but this one had. He was recounting to his congregation in the morning the story of Mordecai and Haman, and he said they hanged Haman upon a gallows fifty cubits high, which Haman had made for Mordecai, and everybody was pleased. Then to himself, in an undertone, he said, "except Haman." (Laughter.)

It is much the same, gentlemen, when Britain got into troublesome disputes with the United States and France she gave away a little of our territory to settle her diplomatic troubles, and everybody was pleased except Canada. However, we have got to a new stage in our existence. We have come to that stage in which we are a nation and the question for us to-day is, How are we to take a nation's responsibilities ? I say we are wont to consider the fact that we have a great heritage, and when we look back over the

heritage which we possess, what a wonderful heritage it is. Somehow or other we are linked with the history of Great Britain so closely that we cannot be separated therefrom. We look back over a thousand years and the great statesmen who have made Britain famous are our statesmen, and we feel just as strong an interest in the work of Gladstone and Pitt and Peel, and all those great old statesmen, as if they were our own statesmen, and in the old poets that made England famous, Shakespeare, and Byron and Milton, and they have a different significance to us from the poets of France and Germany and Italy altogether ; they are to us a part of our very national existence. I don't know why, I suppose it is because we are descended from the old stock, but somehow or other there is a link that binds us to the Mother Land, a link we hope will never be separated. (Applause.) As we look back we find that there is that link, strong, and it seems to me getting stronger as the years roll by. There was a time when even in this country there were to be found men who talked about annexation to the United States. No doubt those men thought they were up-to-date. I tell you it is a hard matter to find a man who will talk about annexation with the United States in this country to-day. Every man is a patriot, every man is a Britisher to the core as well as Canadian, and it is a fine thing to see. (Applause.)

But I must come back to the point I started out to make, which is this : Are we taking a nation's share of the responsibilities of the Empire ? Britain in the old days, I say, nourished us and took care of us and watched over us and chided us, no doubt, when we were doing wrong ; but to-day Britain has found in the last attempt to give away any of our territory that she was dealing with a wilful daughter, a daughter who had to be consulted in the future ; and to-day the Mother Land puts her arm around the shoulder of her daughter and says, In all that concerns you I will consult you in the future. That shows, gentlemen, most strongly that we are among the people to-day a people and a nation, and we must take our own rightful share in the responsibility of the nation. I do not think it is right that the hard-working miner down beneath the seas that wash the shores of Cornwall should be compelled to be taxed that our commerce on the high seas should be protected from foreign aggression. (Applause.) I do not think it is right that the hard-working toiler in the slums of London or Birmingham or Manchester, people who do not get as good wages as we do in this country, should be taxed, and taxed heavily, for us. I tell you, if you have ever been over there you will know how things are taxed. You cannot write a receipt but you have got to put a stamp on it, and you cannot go out in a rig but every wheel of the rig is taxed, and you pay more for keeping a four-wheeled rig than a two-wheeled one. If we only knew in what way the people of that country are taxed to support the great nation, the great empire, we would perhaps consider a little more seriously the question : Are we taking our proper share of the responsibility ? I think that our commerce has grown to such an extent to-day that we ought to do something as a people to protect that commerce on the high seas. I see that we are making a start, but it is a very small one, a little

cruiser on the Atlantic and another on the Pacific. Do you think, gentlemen, that two little cruisers—one on the sea that washes our Eastern shores and one on the sea that washes our Western shores—is navy enough to protect the great commerce this country is building up? I do not think so, and I say to-day we, as Canadians, ought to keep that question alive and keep it before the minds of our representatives. Are we taking our proper share of the responsibility of nationhood? We have a splendid heritage here, we have a free country, freedom of speech, freedom of press, freedom of conscience, everything that can make a man free. We have got a fine heritage to look back to in that which came to us from the Mother Land; we have a fine King ruling over us—there is no finer. What a king he is compared with the poor, weak, foolish monarch, I say foolishly advisedly, who rules the destinies of that great people in Eastern Europe. But I tell you, gentlemen, we as a people ought to stop and think are we taking our proper share of the responsibility of nationhood? If we think, no doubt, something will come of it. I will ask you to rise with me and drink to this toast of "Canada and the Empire."

The toast was drunk, coupled with the singing of "The Maple Leaf."

DR. TROTTER.—Associated with the response to this toast are the names of Dr. Seccombe and Dr. Nolin, of Montreal. I will call upon Dr. Seccombe.

Dr. Seccombe, on rising to speak, was received with the singing of "For He's a Jolly Good Fellow."

DR. SECCOMBE.—Mr. Chairman and gentlemen,—That little song has knocked my speech out of my head. That is just a little scheme of the people down here at the table to put me down and out. However, in responding to this toast I would simply like to say that there is one feature about this question in regard to Dr. Hudson that I would like to speak of first of all, because I remember quite well the last time I heard Dr. Hudson's eloquence it was at a banquet, I think, of his graduating year. I might say, sir, I had the pleasure of graduating the same year as Dr. Hudson, and those who were present at that banquet will remember very well the very eloquent remarks of the Doctor upon that occasion when, if I remember correctly, he proposed this very toast; and you will remember he spoke of the eloquent way in which orators used to deal with this question of Canada about four or five years ago, and he said how they used to tell in eloquent language of the natural resources of Canada, and of the vastness of Canada, and of the richness of her minerals and the richness of the fisheries, and all the other wonderful things in connection with Canada. I might say to you, gentlemen, if you were absent upon that occasion you missed a great deal in not being thrilled and enthused by the eloquent words of Dr. Hudson. But, sir, we find to-day, Dr. Hudson assumes it is not necessary to tell an assemblage of Canadians how rich their country is, and he assumes, and I hope correctly, that to-day there is no doubt at all in the mind of any Canadian, with regard to the wealth of Canada and in regard to the fact that Canada, above all other countries under heaven, is a country that a

man should choose to live in. (Applause.) He has gone a little further than he did upon that occasion. He says to-day Canada has been developed to such an extent that we should have an army and navy of our own. It seems to me that this question of the British Empire and of the greater empire of which we hear so much can be dated back to the time of that little trouble in South Africa. Previous to that time when assemblages of this kind in England or Scotland or Ireland would be wishing to drink the health of the fighting forces of the empire they would always drink the health of the Army and Navy; but, sir, it is a significant fact, it seems to me, that to-day in drinking the health of the fighting forces of the empire they drink the health of the Imperial forces. (Hear, hear) That change, I believe, occurred about the same time as that little trouble in South Africa. Dr. Hudson I am sure from his remarks believes, as every Britain does the world over, that no matter how much beautiful sentiment we have with regard to the little island across the sea, no matter how much we love and adore Britain yet, at the same time, we must all recognize that this sentiment must of necessity be crystallized into some practical form; and that while at the present time we do not know what form that will take (I suppose we could ask the Hon. Mr. Chamberlain and he might enlighten us somewhat), but yet we ought to believe, I am sure, that whether it will be a trade policy or whatever it is going to be, that Great Britain and her colonies will be joined together by bonds which will be absolutely insoluble. There are a good many people who stand and look askance at the whole proposition, and say it is nothing but a dream and a sentiment, but I think these gentlemen will find they are greatly mistaken. In connection with this subject of Imperial Federation I always think of the initial test of which, no doubt, most of you have read, of the steam engine invented by George Stephenson. Present upon that occasion was an old lady who, during the preliminaries, stood there and simply remarked, "Oh, it will never go; it will never go!" but when the great mass of steel went forward and went off at a terrific pace, the old lady flung her hands high in the air and said, "It will never stop; it will never stop!" So, while many men to-day are setting up the howl that Imperial Federation will never go, yet, I am quite sure they will find, as these individuals did, that it will never stop—never stop, until it is cemented into one great empire. (Applause.)

There is one question however in connection with Canada that I wish to speak of. I do not wish to deal with the resources of Canada because Dr. Hudson so thoroughly dealt with that matter four or five years ago as those gentlemen who were present then will remember. But, there is one question I would like to mention very briefly, and that is the question of the climate of Canada. Now, there are many Canadians I believe who, when they go abroad or across the border, speak of the climate of Canada in a very apologetic way. If they happen to run across a little poem of Rudyard Kipling's, describing our "Lady of the Snows," they become perfectly indignant, and they say "that man knows nothing of Canada," because it is beautiful and warm all the time. It

seems to me we make a great mistake in being so apologetic about this matter. Of course, comparisons are odious, and it would not be at all proper for me to commence to compare Canada with the United States. We have gentlemen present from the United States, and they might not at all be flattered when I got through of course. However, I might compare Canada to the United States in this one particular. One of the great questions in the United States to-day is the question of assimilation of the number of immigrants that come from all over the world to the United States every year. Now, what attracts those immigrants more than anything else is the warmer climate of the United States. A cold climate does not suit a tramp or an indolent man; it does not suit a man physically unfit to live in a cold climate. So that we find from the world over the man who wants things easy, and the men who are weak physically all go to the United States in preference to Canada. (Laughter.) There is one thing we as Canadians ought to be proud of, and one thing that shows the pre-eminence of Canada over the United States, is the very fact that we have in Canada a climate that is invigorating and puts industry, life and vigor into the inhabitants.

I jotted down here a note of a little story. It occurred to me in connection with the army and navy, and you will pardon me if I go back. I heard the story of a man walking down street in London and he met an Irishman—of course there is always an Irishman in a story—he said to him, "Pat, did you know I had joined the army?" Pat said "No." He said, "What regiment did you join?" "Oh," the man said, "I mean the army of the Lord." "Oh, well," said Pat, "it doesn't make any difference; the question is just the same. What regiment did you join? I mean what denomination?" "Well," said the man, "I joined the Baptists." "Oh, well, begorra," said Pat, "That is not the army at all, it is the navy." (Laughter.)

Now, just for a moment, gentlemen, in conclusion, I would like to point out this feature of the question. We are so apt to talk about Canada's resources and the development of Canada's resources, and we never think about the development of our own resources; in other words, we are forever painting Canada as a country that is worthy of us, and I would just like to point out the other side of that question, that we should try to make ourselves worthy of Canada. (Hear, hear.)

The question of citizenship, I think, is one that affects us as a profession in a most important way. I think we should take an interest in the affairs of our country. I think we should remember that we owe a great debt to Canada; and though it may inconvenience us a great deal, and though it may not be our personal feelings in the matter I think we should remember as citizens of Canada to take an interest in these affairs of the country. Under this question of citizenship I suppose if you ask ten individuals what they would consider essential to citizenship you would get ten different answers. There are two things that occur to me, one is that we should work and work hard all the time, too. As a matter of fact, if you read the writings of the men who

have presumed to write on this subject of success, and there are many of them, Mr. Carnegie and a few others included, you will find, probably, ninety per cent. or more of them will tell you their success was all due to work. It was not brilliance or cleverness. That is a splendid thing to think of, because if it were only the clever fellows the rest of we ordinary individuals would be left entirely in the shade, but you are encouraged when they tell you it has nothing to do with genius, and as a matter of fact, I am sure you all agree it is not the genius who is successful always, it is often the man that pegs along at it all the time. I read once that a man was very much like an axe, he may be sharp and bright, but will never accomplish anything unless there is some muscle put behind it.

The second thing is unselfishness. What are we going to work for? Is it for ourselves or for some other factor outside? That is the great question that will solve our ethics in our profession. Whenever we have any trouble at all, if you get down to the root of the matter you will find it is a little selfishness of some individual where he puts the interest of himself above those of the profession or above the interests of the country.

On the gate of a university of the United States is this motto as you enter: "Enter and with all your getting get wisdom." Then on coming out you will notice written on the other side of the gateway, "Depart not to be ministered unto but to minister." We go to college and we receive our education not for ourselves, but to help some one else, to try to help the other fellow somewhat. Those mottos on that university gate appeal to me very much indeed.

Naturally enough I suppose we should all go into politics. You know perfectly what an example our past president has been to us. I understand he is a wonderful man on the stump and he has been a great example, I am sure, to the members of the Ontario Dental Society in this matter of politics. Of course I would not advise any gentleman to so devote his time to politics that he neglected everything else. I heard of a man, who lived in Kansas a short time ago, and this man became so wrapped up in politics he forgot everything else entirely, and his wife said to him one day, Now, John, do go out and dig those potatoes to-day, because they are simply rotting for want of digging. Leave politices alone for one day at least. So he decided perhaps he would. He went out with his spade over his shoulder and started to dig the potatoes. He was only out about five minutes, when he came in the house again, and said, Wife, I have found something out there. He washed it off, and said, it is a quarter. Then he went out again, and he had not been digging five minutes when he came back again and said, I have found something else. He washed that off and said, It is a half dollar. Then he started out again, and he had not got beyond the door when he said, I think I will go and have a little sleep, I have done a good day's work. When he wakened the potatoes had all been dug, but his wife didn't find any more money, and she commenced to realize that she had been working for nothing. That

was a pretty mean trick, but politicians are usually tricky. (Laughter.)

Now, I think I have already spoken, perhaps, more than you anticipated I would, when you asked me to respond to this toast. I only wish to say I consider it a pleasure indeed, and an honor to have my name not only associated with this toast but also to have it associated in response with Dr. Nolin, of Montreal. I am sure I am speaking for the members of the society, when I say that we are always glad indeed to have Dr. Nolin and Dr. Dubois and the other gentlemen from Quebec, to come to our meetings here in the Ontario Dental Society. (Applause.)

And now, gentlemen, finally—I think I said “in conclusion” before—there is one thing that has occurred to me in connection with the association of Dr. Nolin with this toast. I suppose most of you know that Dr. Nolin is what people usually call a French-Canadian. Now, it seems to me that one of the things we should guard against in Canada, if we are going to build up the nation, is that we should never speak of Irish-Canadians or French-Canadians or Scotch-Canadians or English-Canadians—let us forget that there is anything else but a Canadian. (Hear, hear.) Let us remember that whether we come from Quebec or Ontario or the west, no matter where we come from we are all glad to recognize that there is no greater compliment a man can pay you than to say you are a Canadian, without any additions or without any change. It is good enough for us all. (Applause.)

DR. TROTTER called upon Dr. Nolin to respond to the toast.

Dr. Nolin was greeted with the singing of “For He’s a Jolly Good Fellow.”

DR. NOLIN.—Mr. Chairman and Gentlemen : I beg, first of all, to express my gratitude for the honor conferred upon me by the Committee in including me among those appointed to address you to-night, and, again, for giving me such an inspiring subject “Canada and the Empire,” to speak about. (Applause.)

Although I fully realize that it was meant more as a courtesy to that branch of the Great Canadian family to which I am proud to belong, than as a personal compliment, I feel, nevertheless, justified in my gratification, inasmuch as the fact of standing here to-night as the exponent of French-Canadian’s ideals, before such a distinguished audience, in this Queen City of the West, looked upon in my province as the intellectual centre of English-speaking Canada, is, in itself, no mean honor.

I only regret that my limited knowledge of your language, and your unfamiliarity with mine, should put me at such a disadvantage, as compared with the eloquent gentlemen who have spoken before me.

In view of that handicap, you may not think it unnatural if I say that I yearn for the day when every boy and girl in Canada shall be required by the laws on education to become conversant with both French and English, helping thus to build a united and happy nation ; a nation without compare in the universe, a nation of broad-minded, intellectual people, having, as means of intercourse the language of commerce and the language of diplomacy,

and, as intellectual food, the two foremost literatures of modern ages.

On this, as on previous visits to Ontario, I have been astounded at the number of erroneous impressions current, concerning the national aspirations of my fellow French Canadians.

Not being a politician, and having no axe to grind, I trust that my words may leave some kind of an impression on your minds, inasmuch as they are the words of a plain citizen from Quebec, speaking to plain citizens of Ontario. Gentlemen, I bring you a message from your fellow Canadians of the Province of Quebec. They bid me tell you that nowhere in this vast Dominion of ours ; not in Halifax or in Vancouver ; not in Charlottetown or in Dawson City, not in Winnipeg or at the foot of Parliament Hill in Ottawa ; aye, not even—hard as it may seem to believe in this patriotic city of Toronto ; is there purer love for our country, greater desire to see it grow and prosper, more devotion to its laws and institutions, deeper respect for, and stancher loyalty to our common Sovereign the King than among the one and a quarter million of French Canadians who dwell on the shores of the St. Lawrence.

If we are to judge by what we hear and what we read, this word loyalty, in the mouth of a French Canadian, may seem strange to several among you. To us in Quebec, the persistent doubts expressed by some in this Province on the very existence of this loyalty is no less puzzling. For, gentlemen, though the loyalty of French Canadians does not spring from any ties of blood with the mother nation across the sea, it has, twice in a century, saved Canada from invasions that the ties of blood has not been strong enough to prevent.

True, our loyalty may appear somewhat old fashioned to those who would perfect in a day that which it has taken two centuries to bring to its present satisfactory condition ; true our national ideals for the near future, in common with a large proportion of the British public, may embrace a narrower horizon than some may find to their liking ; true we may cling to our traditions and we may persist in using the language of our forefathers, *le beau language de France*, first brought into this country when the shores of the St. Lawrence had echoed no human dialect but that of the red skin ; still the loyalty of the French Canadian race to Canada and to the Crown, springing as it does from the contentment born of respected liberties and from love for the native land, is a fact which must be reckoned with in forecasting the future of our glorious, our beloved country. In drinking to Canada and the Empire, Mr. Chairman, I can think of no more appropriate phrase to express my feeling than the last line of the song written by a distinguished statesman, one of the founders of the Dominion, Sir George Etienne Cartier : "A Canada, mon pays, mes amours." (Applause.)

DR. TROTTER.—I am sure you will all agree with me, we have enjoyed an intellectual treat in hearing these speeches in connection with this toast. I was quite aware from what I had heard four or five years ago, that Dr. Hudson and Dr. Seccombe were

capable of handling this subject in such a splendid manner, and of course, we all knew Dr. Nolin, from our experience with him in the past three or four years, could handle it from a satisfactory standpoint for the Province of Quebec. Now I am going to call upon Dr. Heath to give us a vocal selection.

Dr. Heath gave a selection entitled, "Sailing over the Foam," and responded with "The Man Behind" as an encore, which was received with applause.

DR. TROTTER.—We will now go on with the next toast, "The Royal College of Dental Surgeons of Ontario,"—

DR. THORNTON.—Pardon a little digression. I can say to our friends here, that Dr. Trotter is so good natured he does not mind a little bit of an interruption. Do you, doctor?

DR. TROTTER.—Certainly not.

DR. THORNTON.—We have some friends with us that we are very pleased indeed to have here. We have heard from one of them. A short time ago I heard that Dr. Nolin had a dream. He dreamt that he had died and as his spirit was wafted to the celestial regions, Dubeau was with him. The gate was open, and they entered hand in hand, and as they wandered about they seemed a little puzzled at first, and yet there was an air of familiarity all about the place. They wandered for a time and they could not just make out where they were, and then, with a look of surprise Nolin said, "Say, Dubeau, we are up in Ontario." (Laughter.)

Now, we are glad to have these men come in with us, but they will understand that our heart goes out most fondly and most lovingly to the man that has gone out from us and who returns to us again. We have that man with us to-day. I wish it were the privilege or it could be the privilege of every man practising dentistry in Ontario to know the friend that is with us to-night as I have had the pleasure of knowing him. I had the pleasure just about a year ago now, of spending ten days or two weeks standing day by day beside his chair, and he is the same C. N. Johnson that we have with us to-night, intellectual, good natured, kindly and courteous. I went with him day by day to his school-work and if ever I broke one of the commandments I think it was then, for there is a commandment that says, "Thou shalt not covet," and I coveted the place which he occupies in the affections of the students of the Chicago College of Dentistry; and in my own work in the school here he has been the pattern that I have ever had before my eyes. More than that, I have had the pleasure of being in his home and I have seen something of the beautiful home life that developed the man that we heard to-day and as he spoke to us, incidentally we learned that the day after to-morrow he would be forty-five years of age; and some of us who have been in Chicago and had tasted something of the princely generosity and hospitality of that man, thought that we would like to give him something as a little momento to take back with him—a memento of his visit here—and so we have one we are going to ask him to accept. I am sorry it is not possible that you can all see it, and because of that I am going to describe it. It is simply a little circular breast pin set with some pearls and some diamonds.

As I looked at it when I first saw it I said, "Yes, this is emblematic of C. N. Johnson." A circular band of gold. In the practice of dentistry on the Continent of America there is no more fully developed, all round, pure gold man than the man who is with us as our guest to-night. (Applause.) And then as I look and I see the pearls alternating with the diamonds, I see there a further likeness to the man whom we delight to honor. You know that there is a beautiful thing said about the pearl oyster; that the pearl is there because of some injury to the shell of the oyster, and to repair the injuries which has been done, the oyster *weeps* a pearl into the place that has been injured; and as we listened to the man to-day and heard him tell of the manner in which we should throw the broad mantle of charity over our erring brother we could see that he had practised the virtue that he would instill into our minds; and so I said to myself, these pearls are fitting. And then they alternate with the diamonds. We know that there is in a diamond an intrinsic value and so there is inherent in that man's nature an intrinsic value. There is also the polish and the sparkle. We have all listened to the sparkle of his words; we have caught something of the scintillations of his beautiful language and our own hearts have gone out in sympathy with his; and so these diamonds are but fitting emblems of the character of the man who is with us. But above and beyond all that there is stirring worth. Sometimes when men have reached the top of the ladder, while there are so many of us crowd around the bottom rungs, we are apt to place them on a pedestal and we idolize, we worship not the *man*, but the position, but you remember the immortal words of the immortal Burns:

"The rank is but the guinea's stamp.
The man's the gowd for a' that."

and though C. N. Johnson occupies a place, an enviable place in the dental profession of the world, that would be absolutely impossible if it were not that beneath the breast there beats the true, honest, warm heart of a thorough man. Just before I sit down let me say I was sorry to hear about Dr. Cæsar's accident. Dr. Cæsar spoke to me to-day when I suggested this and he said, "I want to be there, Thornton; Johnson is the one man that I would be delighted to do such a thing for." Therefore our hearts are sore to-night because Dr. Cæsar is not here. I am going to ask Dr. Johnson to accept this little memento as a slight token of our appreciation of him and as a kindly remembrance of his forty-fifth birthday. (Applause.)

DR. JOHNSON.—Mr. Chairman, Dr. Thornton, and friends: I once read a remark by an eminent editor of a weekly paper, a paper which at that time had probably a wider circulation in the United States and Canada than any other paper of a similar nature. The editor, on one occasion, was visited by a band of loyal, little newsboys, and because he had been kind to them they brought to him a pair of cuff buttons as a present, and he wrote an editorial the following week, saying that the editor's lips had been "buttoned."

To-night, gentlemen, I feel as if my speech had been "pinned" up. I cannot begin to tell you how profoundly affected I am at such an expression as this coming from the profession of Ontario, coming from the profession of my own native land. Just one slight diversion at this point. I want to announce, that while I was born in Canada, and had the ill-grace to go over to the United States, it was not exactly through the same sentiment that Dr. Seccombe has attributed to the immigrants. (Laughter.) At least, Mr. Chairman, if I went there to look for a soft spot, I failed to find it. I have done just as hard work in the United States as I ever did in Canada. I could say something about the climate, too. (Laughter.) Now, I do not know what I can say about this beautiful present. Usually I do not believe that I lack very much in the gift of gab. I think I have demonstrated that within the last day or so, but to-night I am practically dumb, and yet I should feel uncomfortable if I left here without trying to express, in some slight degree, my appreciation of this magnificent kindness you have shown me. I am going to wear that little pin with the greatest pride that I ever wore a piece of jewellery in my life, and I should like to say this also, that while I was held up on the streets of Chicago at seven o'clock in the evening this winter, if I was held up with that pin on, boys, I would fight for it. (Applause.) The only individual that I know of, that is likely to wear that pin, except myself, is some one of the female members of my family, and they can wear anything I have. (Applause.) There is one thing, Dr. Willmott, in this connection that I wish to say, the only individual that has ever worn the gold medal that you bestowed upon me at the end of my college course here, has been my little daughter. Dr. Thornton has taken away everything I had in my mind to say. I was supposed to respond to a toast, or propose a toast, "The Royal College of Dental Surgeons of Ontario." I had some things formulated to say in connection with this toast, because I believe it is a very important toast on an occasion like this, and I have an especial relation to the subject—I am an alumnus of this college. Twenty-four years ago this month I was graduated from this institution, and as I have been looking over this assemblage, I believe there are only two other members of that class present to-night. I believe that Dr. Davidson and Dr. Fear, if I remember correctly, are the only two present. If any other members of that class are here I wish they would manifest it. (Dr. Ziegler intimated his presence.) Dr. Ziegler, I beg your pardon. Well, now, you know the old guard is not all gone yet. I do not think I have seen Dr. Davidson since that time, till this meeting, and when I saw him I did not call him Dr. Davidson, but I said, "Sam, how are you?" Why, I could not call him Dr. Davidson. I would have to call him "Sam" if I met him—well, in Ontario. (Laughter.)

And so looking back over that twenty-four years, and remembering the interest I took in the institution at that time—and I took a very great interest. I had to, because I was trying to graduate; but as I said to the students this morning, they little realize what a peculiar interest will develop around this institution as the years go on. While they are interested in it now, yet their interest will grow, and they will find a peculiar sentiment, and a peculiar feeling growing up around that institution as the years go by. I come here to-night, after going to another country, and graduating at another institution, and having made some of the dearest friends I have on earth in that other country, and connected with that other institution, and I say to you I have never seen the time when I have not been proud of my graduation in the Royal College of Dental Surgeons. I have always, on every occasion, upheld to the best of my ability the reputation of this institution. It has always been a proud moment when I could say, and say truthfully, that in many respects there is no institution of dental teaching in the world that can compare with this same institution in this City of Toronto. I say that not here alone to you, but I say it to men on the other side. I have said time and time again that the material you get into your college here is infinitely better than the material which goes into any other college with which I am familiar. Your preliminary requirements are higher here; you have a class of young men, which gives you the material to make the best dentists in the world. And just in this connection let me make one suggestion, if I may. Your preliminary requirements are high, but I should like to see you go one step further, and while you require a certain standard to-day, let that standard be somewhat specialized, so that, in addition to the broad basal education that you give these young men coming into the Royal College of Dental Surgeons, you specialize the instructions in such a way that they begin to get manual training a little earlier than they do now—manual training in connection with preliminary education. Why do I say that? I have often said something along that line, and the statement has been made to me, that we give the students technical education and manual training enough in the dental college. That is true with a certain class of men. If you take a young man, who by nature is mechanical in his make-up, he will get sufficient manual training after he gets into the professional school. But take the average young man, who may not have this native mechanical ability, and you must develop it in him at an early age before he is admitted to the professional school. Why? Because in developing manipulative ability in the individual who does not have it in a native way, it must be developed while the muscles are growing, while the individual is developing. I remember speaking to an eminent teacher of music on one occasion, and she said to me, "How old is your daughter?" And when I

told her fourteen, she said, " You have lost two or three years in the musical training of your child." She said with a certain development along at a particular age her muscles could be trained and controlled and strengthened in a certain way that never could be accomplished later in life. The great danger in extending a purely literary preliminary education too late in life, is that the mental faculties may be developed in the most beautiful way, but that the other faculty that is just as important to the dentist will be lost sight of, that is the faculty of proper manipulation. And so in your preliminary education, if it can be so directed—and I have infinite faith in the fact that anything can be directed in this Province if you go to work at it right. I think it would be a good thing to have the manual training developed in these young men earlier than it is now, and if you start on that basis, and specialize your work in preliminary education, and then bring your young men into the school, with the magnificent mental training they now have, and give them instruction there along purely dental lines, you will graduate from this institution a body of men that cannot be equalled on the civilized globe to-day.

I cannot take up any more of your time. I ought to say this, in justice to the country of my adoption, that since going from Canada there, in fact, all during my residence there, and in my college associations there, I have never received anything but the most delightful treatment on the part of the citizens of that country. They are the finest people outside of Canada that I know of. You will think I am a diplomat. I have never run across the sentiment over there that was expressed on one occasion by the native of a certain country against " Pat," who had emigrated from Ireland, and had come to this country, and who, true to his traditions and instincts, immediately began to mix up with the politics of the new country. He became offensively a politician, so much so, that one of the native-born sons said to him one day: " Pat, I want you to keep still; you are stirring up too much trouble here; mixing up too much; you have not been in this country any length of time, and still you are dominating everything in your ward. Keep still for a while; don't be so fresh. What did you bring into this country when you came here any way?" And Pat said, " Well, sir, what did I bring into this country when I came here? Be japers I brought my *clothes* with me, and that's more than you can say." (Applause.) I have never been placed in a position where I had to twit the Americans with the fact that I had brought my clothes with me. I want to say this also in this connection, it has been my experience that the professional brotherhood that exists between the dentists of Canada and the United States has been most delightful to me. I have been associated with American associations, dental societies, and associated with societies on this side of the line, and I have never

been subjected to one moment's embarrassment on account of the fact that I was born in Canada ; received my early professional education here, and went to the United States after that, and received an additional education there. And I want to say this for the people of Ontario, that I have always received from you, in coming back here, the most cordial greeting. Why, gentlemen, you have done more for me than I can ever possibly do for you—you have done infinitely more for me. I want to say that I received my early inspiration in dentistry from the gentleman at my right hand to-night—Dr. J. B. Willmott. (Applause.) It is profoundly affecting to me to come back here after these twenty-four years, and find in that institution three of the men who were prominent in it at that time—Dr. Willmott, Dr. Stuart, and Dr. Teskey. I am sorry Dr. Teskey is not here. But it is very gratifying to me to find the same three men connected with the institution, and I hope they will be connected with it as long as they live. (Applause.)

I want, Mr. Chairman, then to propose this toast, "The Royal College of Dental Surgeons of Ontario," and I ask you to join me in drinking to the health of that institution.

DR. STUART.—Mr. Chairman and Gentlemen,—I must thank you very heartily for asking me to respond to this toast, but you can understand my feelings better if I tell you about a banquet that was held in Liverpool some years ago when the mayor of the city was entertaining one of the Indian Princes, and while entertaining this Indian Prince, and while at dinner he passed a note down to a gentleman a little further down the table, and suddenly this man grew ashen pale and the Indian Prince turned to the mayor and said, What is the trouble? Have you power over life and death? And the Mayor said, No sir ; why do you ask me that question? And the prince said, because I noticed when you sent a note down to that gentleman he became very much agitated and turned ashy pale. Well, the mayor said, the reason of that was because I asked him to speak. So you can understand my feelings here when I am called upon to speak as an after dinner speaker, because I am usually called upon to speak upon very abstruse subjects in chemistry, and if I were to talk upon that subject I think you would very soon quit the room and go to your respective homes at an early hour. However, I must say this, I am very much pleased to hear Dr. Johnson and all those who have spoken before, who have given us eloquent speeches ; and I would like to say that it seems as if all those who have graduated from this dental college of ours, "Where'er they go or whatever realms they see, eventually they turn again to thee," as the poet says. So if they leave their hearts with us, I may say to them, they certainly have our hearts going with them as they pass away, and when they come back again it seems a great pleasure to mingle our hearts together again, and get our old hearts back for a short time only to return in a few days.

However, our duty as professors upon this staff is, of course, to

teach the students and to instruct them in the preservation of the health of their patients, to prevent decay and ache and pain, and to maintain the vigor and beauty of youth. Prof. Osler seems not to have recognized that fact for he did not take into consideration that the dentists did such good work in maintaining the beauty and vigor of youth, or he would have put off the chloroform period for twenty or thirty years longer. I may say that we all admire beauty. We are never quite sure, however, at this present age what the make up is until we have enquired from the hair-dresser, and from the limb maker, and from the corset maker and from even the dentist. When you commence to consider the make up of a person in that way, it reminds me of the story of an old Scotch minister, who was accustomed to have family worship as usual, and one of his sons was rather a smart boy, and he took it in his head one day to paste two of the leaves of the Bible together, where the old minister was accustomed to read. So he pasted the two leaves together, and the old gentleman when he began to read his discourse said : " And Noah was six hundred years old when the water covered the earth, and Noah went into the ark and his sons and his wife"—and he turned over the leaf—" was three hundred cubits long and fifty cubits wide"—and he turned back and read again—" and Noah was six hundred years old when the waters covered the earth and Noah went into the ark and his sons and his wife was (blowing the leaf of the Bible) three hundred—and Noah was—Noah's wife was—." He said, we will just read that again, " And Noah was six hundred years old when the waters covered the earth, and Noah went in and his sons and his wife was —three hundred cubits long and fifty cubits wide and was made of gopher wood and was lined inside and out with pitch." He says, This goes to show how fearfully and wonderfully we are made. (Laughter.) So I see that even in Noah's day the wives and females were capable of stretching a little bit.

Now, I would say with regard to the dentist—of course we all know it by accident—they aid in promoting the vigor and beauty of youth and, of course the faculty have to take a certain amount of credit for that sort of thing. I might remind you if you have ever been in the Old Country, and have gone to St. Paul's Cathedral you might as you go passing around see an epitaph written upon the wall, to that famous architect, Sir Christopher Wren, which simply reads, " Look around you." Now, I do not want to be egotistical on the part of the faculty, but I do say that we do not need any further epitaph than simply to say, " Look around you ;" and I think if we look around at this gathering here to-night it is a source of great satisfaction to the Dental College to see such a fine class of men and to hear such a fine class of language as has come from the lips of every one who has spoken here to-night. It seems to me that we must feel that we have contributed, to some slight extent at any rate, in helping those who have gone through this institution. I trust we shall always be able and willing to do our duty in this respect. It is a very difficult task because our duty in a country like this, which is so great and so magnificent, as we have already heard, means we must be com-

mensurate with the glorious extent and greatness of the country that we are in.

I thank you, gentlemen, very heartily for the kindness with which you have received the toast to the Faculty and I am very sorry it was not responded to by our good old friend, Dr. Willmott, who has not been very well for a short time past, but I think is quite better again, and I think he should have been responding to this toast this evening. I am delighted to see all these faces back again, many of their names I do not know. But I am delighted to see the faces which I do know, and I am delighted to see my great and good friend, Dr. Johnson, back here again with us this evening. (Applause.)

At the request of the chairman Dr. Davy rendered a vocal selection entitled "The King," which was received with applause, after which Dr. Musgrove was called upon to propose the toast "Our Guests."

DR. MUSGROVE.—Mr. Chairman and Fellow Dentists,—I really have to apologize for not making much of a speech to-night. I had two suppers inflicted upon me since I came to the city to-night. However, in proposing this toast, it is to me a great source of pleasure Dr. Trotter asked me to propose the toast, "The Neighbors to the South of us," and then I believe it was changed to "Our Guests;" the proposing of either toasts would be to me a very pleasant task from the fact that our friends to the south of us who are living along the boundary line have learned during the past ten years of the fraternity that exists among the professional men along the line. Also, I am deeply pleased to have with us our friends from the Province of Quebec. Our friend, Dr. Seccombe, will tell you there should be no French Canadians or Irish Canadians and so on. That is true in the main, but still the French tuition is in the school, the French blood is in their veins, and it is only natural. I rejoice when I hear the old songs of Ireland and the bagpipes. I say that we are deeply pleased to have with us, as has already been said, and we cannot say it too often or too much, our good friend, Dr. Johnson. Dr. Johnson has proved to the letter that he is a patriot and we are always pleased to see him back and to say he has given us many intellectual and professional treats, and we are always pleased to have him with us. I may say that Dr. Johnson, I think five years ago in a lecture or in an article in the journal, I forget which, rather hit us over the knuckles and we felt a little sore for the time being when he said he traveled through Ontario in his holidays and he noticed we were doing too much premature extraction and producing a nation of pie faces to a certain extent. I would tell you that was good hard hitting and it did us good, because to-day you see the order has been changed; instead of the days of the forcep and vulcanite plate I see a convention met of the intelligent young dentists of the Province of Ontario and a large part of the programme is clinics on professional work; and Dr. Johnson has done us good service in that respect. We are also pleased to see our friend Dr. Nolin and Dr. Dubeau with us. Dr. Nolin has proved himself an orator, as many of the French-Canadians have proved themselves; and

with regard to whether they are from the Province of Quebec or Nova Scotia this we will say, when the Canadian boys went to fight in the battles on the South African Veldt and when they were found in the Boer trenches it was not asked whether they were men from Ontario or French-Canadians, but it was enough to say that they were Canadians. And I tell our friends across the line that there are many things we rejoice in in their country ; we rejoice particularly in their spirit ; and as our Premier tells us, the nineteenth century was the century of progress in the United States, and to-day the twentieth century is the century of progress in Canada, and with that progress which took place in the latter part of the nineteenth century, no body of professional men were up to date and made great progress with the times as much as did the dentists of that day ; and while our boys went across the line in by-gone days we hope in the days that are to come, with the increased development and advantages of Canada, that the boys will come from far off lands to our colleges as they have done to the colleges in the United States. I hope it will be as our friend Dr. Osler said, that there was one thing he particularly admired about the American, and that was that when a boy went into the United States they did not ask him whether his father was a duke or earl, or whether his father wrote his cheque for half a million dollars, but the question was asked, "Are you a man of brawn and brain, and muscle, and can you do our work?" They appreciated his work and he was placed in his proper standing in that country. In the United States if I left home and went there and wished to engage in the beef trade I might be met with a trust; if I wished to engage in the steel business I might be met with a trust, but in the dental profession I would meet no trust but receive a kindly and fraternal greeting there, with no tariff walls. I say to Dr. Johnson and to our friends from Quebec we extend a kindly greeting, and may you come often to see us and receive the same royal welcome you have received this evening. (Applause.)

DR. TROTTER.—Associated with the response to this toast are the names of Dr. Dubois and Dr. Brophy of Chicago. We will first drink to the health of our guests and I will then call on Dr. Dubois.

The toast was drunk followed by the singing of "For They Are Jolly Good fellows."

DR. DUBOIS.—Mr. President and Gentlemen, I am sorry you have to listen to me after such eloquent speeches and fine language; it will certainly take away from you the charm of the evening. Anyway, I wish to tell you that it is a source of great satisfaction and pleasure to me to be at this convention of the Ontario Dental Society. I regret that our delegation from Montreal is not more numerous and I regret it because I strongly believe that the time and money spent in attending these dental conventions is certainly one of the best investments a dentist can make. Moreover I think that even the most skilful of us may always learn something from the experience of our confreres. In our province we are not as lucky as you are to have an annual meeting such as you have had

for some sixteen years and that makes it plain why we are not so many. It is only three years since we have established an association. We have come together twice and we have started to know each other and no doubt by meeting every two years we will get in the habit of attending conventions in future, merely to see more of one another. (Hear, hear) To-night it affords me pleasure to be with you because you came to Montreal, we met you and we became acquainted with you and found you were good friends, and then you invited us and we came.

I wish to say a word concerning a circular to be found on your table to-night with reference to the meeting of the British Association which will be held in Southport near Liverpool in May. I do not know whether I make a mistake or not but I think it is the first time that we have been invited as a body to attend the meeting of the British Association; in fact we did not exist before as a national body. I hope quite a number of you will go, I have heard that your Dean, Dr. Willmott, may go although he is afraid of being sea sick. Personally I shall go with half a dozen dentists from Quebec and I hope there will be quite a number of you to join us so that we may have a pleasant and enjoyable trip. It is probably a hard time of the year for many to get away on account of the fact that most of you take your holidays in July and August but the very low rates that have been secured will certainly be an attraction. We have a rate of \$126 return instead of \$480, and the best accommodation on the steamer Vancouver has been reserved, or will be, for the dentists. I have the plans of the two steamers with me and I will leave them with my friend Dr. Webster. If some of you wish to join the excursion kindly choose your berths and reserve them as soon as possible. The meeting starts on Saturday morning and the Vancouver will probably arrive there on Sunday evening, but the rate is much lower, \$73 return.

Before taking my seat I wish to congratulate you on the Convention, on this dinner and on the speeches I have heard and I wish to thank you for the kindness you have shown to us. (Applause)

DR. BROPHY.—Mr. Toastmaster and Gentlemen, it is inappropriate, it is unfortunate and I feel very much like adding it is unfair that I should be called upon to respond to this toast in the manner in which it was done. It seems it had been expected that my brother would be here, but owing to illness he was unable to come, and just a short time ago the toast master said to me that he would like to have me fill my brother's position. I say it was inappropriate, it is improper and for the reason that I am wholly incapable of taking my brother's position as post-prandial speaker. A great many of you know that. If you don't know it you soon will. Before undertaking to speak to a gathering like this I always like to have a little bit of time in which to ponder over what I shall say in order that I may say may be less ponderous. I want to thank you, gentlemen, for the courtesy which has been shown me since I came here. I would like to make some few remarks concerning some of my Canadian friends, one particularly, the past presiding officer. You perhaps remember in his address he told

that our train was delayed because there was a hoodoo on it from Chicago. I want to say, gentlemen, that we came along as far as London very nicely; our train was right on time. When we stopped at London, our friend, Dr. Thornton, intruded himself upon the presence of the passengers and just as soon as the train started he started telling stories. As he kept on telling stories the train kept going slower and slower until finally a couple of engines came together out in front a little ways and we were tied up for three or four hours. The poor engineer of one of the engines had almost the whole side of his head taken off, including his ear. I am satisfied that if this engineer had been with us in the train and had listened with us to Dr. Thornton's stories he would have congratulated himself that he had lost his ear. (Applause.)

I heard a story one time told by Colonel Ingersol. He said he was travelling through the South and he came to a creek. He said on the bank of the creek there stood an old mill. He said the chimney had toppled over and the doors and windows were broken in. He said the clapboards were flapping in the wind. He said that even the dam in the spring had been washed away by the floods of time. He said in fact that the old mill wasn't worth a damn. (Laughter.) Some remarks of our friend Seccombe in relation to the emigration—(laughter)—from Canada to the United States sort of put me in mind of that story—put me in mind of the old mill. We have some pretty husky Canadians over on the other side.

Now it seems to me that I would very much rather speak to the toast of "Our hosts" than "Our guests." It does not seem hardly proper for one to get up and talk about himself. If I wanted to talk to you about Dr. Johnson I could make a very much longer speech. I could tell you gentleman that out of the 25,000 dentists in the United States Dr. Johnson, an alumnus of your college, a native of your country but at present living with us on the other side, is beyond all question the leading light of the profession in the branch of operative dentistry. (Applause) Not only that, Dr. Johnson stands to-day the most prominent in literature in the dental profession without any question in the United States. Just a few little things like that, gentlemen, I feel sure will add to the pride that you feel in Dr. Johnson and perhaps in time you may bring it up to that standard of pride which we feel in Chicago. Dr. Johnson and I are going back home soon. Perhaps you have heard another story—I am not an Ingersol man altogether, but this is another Ingersol story—a story told by Bishop Brookes. Bishop Brookes it seemed was a neighbor of Col. Ingersol's in New York and one day he called on the Colonel quite unexpectedly and he sat and visited with him a while and finally he got up and said he must go. Col. Ingersol says, "Bishop, I am very grateful to you for calling upon me, but," he said, "I don't just understand why you honored me to that extent at this hour of the day at least." "Well," the Bishop said, "I tell you, Colonel, I am going away; I am going to be gone several weeks and, he says, you know, Colonel, if you should die before I get back I never would see you again." (Laughter.) Now, Dr. Johnson and I are

going back to Chicago. Personally I very much hope that I will meet all of you gentlemen again whether you die before I get back or not. (Applause)

DR. TROTTER.—I do not think there was any necessity for Dr. Brophy to apologize for the short notice he received of his responding to this toast. In fact I am very glad it was not possible to give him longer notice for the sake of Dr. Seccombe and Dr. Thornton.

Now, the hour is getting late and I think if we join in singing "Auld Lang Syne" it will wind up the evening very pleasantly,

At 12.20 a.m. The guests rose and joining hands sang "Auld Lang Syne" and "God Save the King."

Selections

ASCHER'S CEMENT.

BY MISS ISOBREE MOENS, THE NETHERLANDS.

Read before the Students' Society, National Dental Hospital.

I have not come here to read a composition to you in good English, with long, well constructed sentences, but I simply wish to tell you as well as I can something about Ascher's Cement in the few words of English I have learned in these two months principally from you. I hope you will be able to understand what I mean, and if you don't I shall be very much obliged to you for telling me so, and I will endeavor to explain to you more fully my meaning.

I have no wish to puff up this composition, I will only tell you of what it is composed, how to use it, and in which cases. If any of you who try this material and find anything wrong or extraordinary happen, will kindly tell me about it, I will thank you for the information.

Here you see again that man always is the same, always selfish. First I, then I again, and you do not come in for a long time. You understand, I only speak to you to hear more about Ascher's Cement, and well to learn its value through your experiences.

So, gentlemen students, as you are or were, but as you properly remain your whole life, as Mr. Beverley told us at the last meeting, follow as I do now, one's natural selfishness, and relate over and over again, your theoretical or practical opportunities, and we certainly will learn something by discussion.

Do not think after all: Oh, Ascher's Cement is fit for all cavities, for all teeth and for all patients, away with all the inlays, away all the osteo stopping. Why should one trouble about a gold stopping, all those things are of the past, Ascher's Cement is a universal stopping.

I believe I may say everybody here knows Ascher's Cement, and if there is one who does not know it yet, he soon will be introduced to it.

Ascher's Cement was invented by Mr. Ascher, L.D.S., Dentist, in Berlin, and was given to the world in the beginning of last year. It is known as an osteo, and composed of a powder and a liquid. The composition is a gritty one, and composed of

Kaoline	for about	50	per cent.
Silicium	"	25	"
Lime	"	15	"
Magnesium	"	2	"

and some water that disappears when it is heated.

This silicate cement, as Ascher's Cement is called, does not contain zinc, nor oxide of zinc at all. The other zinc phosphate cements do.

This mixture—almost the same as porcelain body—is heated for several days to a temperature of 1,700 degrees C. The liquid consists of phosphoric acid, meta, para and ortho-phosphoric acid, acetic acid and water.

There seems to be a great difference between a silicate cement and an ordinary zinc phosphate cement. The saliva of the mouth does not have the same effect upon a silicate cement as it has upon zinc phosphate cement.

In the latter are formed, zinc phosphate, calcium phosphate, and some other combinations, which are more or less dissolved by the acids of the mouth. But in the former, the silicate cement, double combinations are formed from kaoline plus lime and phosphoric acid, and silicium plus magnesium and the acid, and these double combinations seem to prevent the saliva from dissolving the calcium phosphate and the magnesium phosphate, which are the weak points in the zinc phosphate cements.

I saw a drop of the liquid by accident, that had fallen upon a marble slab, give off carbonic acid gas (CO_2), and a rough spot on the slab was left. And what would happen in the tooth, as the dentine is principally calcium phosphate and magnesium phosphate. Where this liquid is brought in contact it must cause decalcification of the dentine, and if the wall that covers the pulp is thin, the acid will reach the pulp, and this irritation will cause an inflammation of the pulp. The patient comes back with bad pain, and then we are worse off than before. So, if the cavity is deep and the pulp is near, I consider it better to fill first that part of the cavity with a non-conducting, not-irritating material to protect the pulp.

In the box we find beside those two bottles, a glass tube, to pick up the liquid. To mix stuff and liquid firmly together we have to use a bone spatula, or a golden one, as a certain German dentist uses. I think these things show us that it is not intended to use a common metal instrument to mix liquid and compound.

In general we mix it rather thick, but do not put a large amount of powder and liquid together at once, but mix them by degrees till you feel it smooth.

When you have got the most useful consistency, you fill the

cavity with nickel, or clean polished instruments or whatever you like, so long as you do not discolor the material. The thickness may be as of an ordinary osteo stopping or even harder than that. The more liquid the mixture contains the thinner it is, thus the more acid will reach the dentine and afterwards perhaps the pulp, and for that reason, I think it is important to line the axial wall with ordinary Harvard cement, or if you think this still too irritating, oxy-chloride of zinc or artificial dentine.

And now, I ask you, should an ordinary cavity lining with varnish be sufficient?

Now, some remarks about cavities and teeth.

As Ascher's Cement is considered as an osteo, it is only intended for the front teeth, but I think it must be useful in molars also, as long as the cavity is central. Considering that bicuspids generally have proximal cavities, it would seem preferable not to use it in them. We sometimes see central osteo stoppings in molars on the mastication side which last years and years. Proximal stoppings of Ascher's Cement in front teeth looked quite well as I saw them after six months, at least. I noticed a great difference between these stoppings and an ordinary osteo stopping. So I suppose that an Ascher's Cement stopping in a central molar cavity will, of course, last as long. But be careful never to use it for building up a corner.

As the corner of a tooth has much to bear, the material must be very strong ; it may not be frail, as Ascher's Cement really is, else pieces might break off. This stopping possesses no special adhering property, so that it does not stick against the walls, and, as a matter of fact, we want a cavity with retaining points or undercut.

You may build a corner of a front tooth up of cohesive gold, and if it is well done it is rather strong and you need not be afraid of this corner being bitten off, because here you build up pellet after pellet and you make as much undercut and retaining points as you like. This, of course, you cannot do with Ascher's Cement.

Now, some remarks about the edges. The edges of the cavities ought not to be bevelled, as they ought to be for gold stopping, but must be prepared with the exact sharp edges as if prepared for an inlay. In this manner the edges of the stopping are not overlapping, and the possibility of the breaking off considerably lessened. It is just the breaking off of the overlapping edges, forming an angle that includes a corner, that is principally the cause of stoppings falling out, as at the same time larger pieces of the stopping are pulled out. But if the edges are prepared in the above-mentioned manner, no pieces will be broken off.

Ascher's Cement is to be obtained in several shades ; I believe there are seven. I have only used two colors, and thought number one was a rather good one, but that is now of no interest.

The stopping in the tooth looked like an opaque spot, and is to be compared with abnormally formed enamel, the white spots we often notice on teeth.

There is a great difference between an ordinary osteo and Ascher's Cement stopping. The first looks absolutely dead, and the

color is far from excellent, whilst as Ascher's Cement approaches the natural appearance, it resembles the white spots in the teeth, and the color does pretty well. But I never saw whole translucency as there is supposed to be.

As soon as the cavity is filled with spatulas and pluggers, and we produce the contour with the same instruments with some vaseline, the materials will be almost ready for polishing. We smooth the surface with all kinds of things, disks, stones, metal and ordinary strips and files, all lightly greased with vaseline. Having done this carefully, I have never seen the translucency. I even found that the surface of the stopping is not smooth ; from the first day it is and remains a little grainy. But as soon as it becomes wet by the saliva it gets the natural appearance. And then remember this—put on the rubber dam. Don't think, "Oh, I can manage it without rubber dam ; it takes too much time, and if I work carefully I will succeed."

All these *pour parlers* are nonsense ; whenever you use Ascher's Cement do not work without rubber dam. I often think that that is a reason, too, that ordinary osteo stoppings only last for some years. One does not take enough care of that work.

Now I have told you something about Ascher's Cement. Most of it I found in several German papers. I hope you will find this material a useful one, not only worthy of notice and discussion, but one that will give us great satisfaction in certain cases, unless we soon reach the ideal when either we have no teeth or we do not want a dentist. But that is far off, I hope.—*British Journal of Dental Science.*

Proceedings of Dental Societies

HARVARD DENTAL ALUMNI ASSOCIATION.

At Boston, Mass., June 26th, 1905, at its thirty-fourth annual meeting, the Harvard Dental Alumni Association elected the following officers for the ensuing year, viz.: President, Ned A. Stanley, '84, New Bedford, Mass. ; Vice-President, Arthur W. Eldred, '90, Worcester, Mass. ; Secretary, Waldo E. Boardman, '86, Boston, Mass. ; Treasurer, Harold De W. Cross, '96, Boston, Mass. ; Executive Committee, Waldo E. Boardman, '86, Chairman *ex-officio*, Boston, Mass. ; Walter A. Davis, '01, Boston, Mass. ; Arthur A. Libby, '99, Boston, Mass.

The Council is composed of the officers.

WALDO E. BOARDMAN, '86,
Secretary.

OFFICERS OF THE WESTERN ONTARIO DENTAL SOCIETY.

Honorary President, John Mills, Toronto; President, G. A. Bentley, London; Vice-President, C. A. Snell, Essex; Secretary-Treasurer, F. E. Bennet, St. Thomas; Executive Committee, A. W. Thornton, Chatham; A. A. Babcock, Brantford; W. A. Piper, London. Next place of meeting, London. Date to be set by the Executive Committee.

MISSOURI STATE DENTAL ASSOCIATION.

At the fortieth annual meeting of the Missouri State Dental Association, held in St. Louis May 24th to 26th, the following officers were elected:—President, W. M. Carter, Sedalia; First Vice-President, F. H. Achelpohl, St. Charles; Second Vice-President, F. G. Worthley, Kansas City; Recording Secretary, H. H. Sullivan, Kansas City; Corresponding Secretary, Sam. Bassett, St. Louis; Treasurer, J. T. Fry, Moberly. Board of Censors: J. C. Pasqueth, Mexico; J. L. Bridgeford, Macon; DeCourcey Lindsley, St. Louis. Committee on Ethics: J. B. McBride, Springfield; A. J. Prosser, St. Louis; F. M. Fulkerson, Sedalia. Committee on Publications: Otto J. Fruth, St. Louis; J. W. Hull, Kansas City; Committee on Inventions and New Appliances: Ralph H. McCrum, Springfield; Committee on History of Missouri State Dental Association: Burton Lee Thorpe, St. Louis. Time and place of next meeting, May, 1906, Springfield, Mo.

Review

The Role of Modern Dietetics in the Causation of Disease.

By J. SIM WALLACE, M.D., D.Sc., L.D.S. Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Gardens, London, Eng. 1905.

This work, like others, by J. Sim Wallace, is original and clear in statement. Discussing the vexed question of dietetics, the author says the two most common diseases of mankind are caries of the teeth and indigestion, the two running hand-in-hand, and of common origin. The book, of 90 pages, is divided into eight chapters, most of which have already appeared in the *British Medical Journal*, the *Lancet*, the *Medical Press*, the *British Dental Journal*, and the *British Journal of Dental Science*. It is an interesting and instructive book, containing the kind of information the dentist should have at his command, so that he may speak with intelligence to the parents of his young patients.

Oral Pathology and Therapeutics. By ELGIN MAWHINNEY, D.D.S., Chicago, Ill., Professor of Special Pathology, Materia Medica and Therapeutics of Northwestern University Dental School; Member of the International Dental Federation, National Dental Association, Chicago Dental Society, Odontographic Society of Chicago; Secretary of the Illinois Dental Society. Published by the Consolidated Dental Mfg. Co., New York, with 116 illustrations. London, Eng.: Claudio, Ash & Sons, Limited. 1905.

The dental profession is in great need of a text-book dealing with dental materia medica and dental medicine. Dental pathology and dental therapeutics are being kept fairly up-to-date. This book, of over 200 pages, treats quite fully the subjects under dental therapeutics. The pathology taught is generally sound, and the treatment rational. It is plain, of course, that to make a book of the papers already published by the author, without adding subjects in which he is not fully conversant, would not be wise from a business point of view, but would have been more acceptable to the general practitioner, who has kept abreast of the current dental literature. However, the reader will soon learn what is the result of the authors personal work and what is culled from other literature. The refreshing part of this book is to find fully three-fourths of it made up of reports of the author's personal experiments and observations. He has not rushed into print before he had done

some work, which is the habit of so many supposed authors of books.

The diseases resulting from the death of the dental pulp are treated in the most simple and rational manner. The author is stating what he knows to be good practice, and not what would seem to be good practice. That portion of the book dealing with the potency and rational use of drugs on living tissue is, perhaps, the best thing on the subject now in print. A book which contains so much original and new matter should be carefully read and its teachings put into practice. The only regrettable part of the work is its careless editing. The proofs could hardly have been read before going to press, or so many flagrant errors could not have been allowed to pass. The author says he was busy, but this can hardly be an excuse for sending out so much good material in such poor clothes.

Dental Metallurgy. A Manual for the Use of Dental Students and Practitioners. By CHARLES J. ESSIG, M.D., D.D.S., formerly Professor of Mechanical Dentistry in the Dental Department of the University of Pennsylvania; and AUGUSTUS KOENIG, B.S., M.D., Demonstrator of Metallurgy in the Dental Department of the University of Pennsylvania, and Assistant Demonstrator of Histology in the Medical and Dental Department of the University of Pennsylvania. Fifth edition, revised and enlarged, with 76 engravings. Published by Lee Brothers & Co., Philadelphia and New York. 1904.

Though it has been only a few years since the first edition of this excellent work was published, it has run through five editions; each edition being enlarged and improved until the present one contains many excellent illustrations and over three hundred pages of excellent matter. Alloys and amalgams are treated in accordance with the most advanced knowledge of the subject. A dentist without a work on metallurgy will make many useless attempts at metal combinations. Better to have the advantage of what others know, and save time for experimenting, to find out what has not yet been discovered.

Dominion Dental Journal

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3 COLLEGE STREET

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VOL. XVII.

TORONTO, JULY, 1905.

No. 7.

THE WESTERN ONTARIO MEETING.

The Western Ontario Dental Society held its annual meeting at Brantford, June 21st, 1905. For some reason not clear to the dentists of Brantford, who had prepared a splendid programme of social entertainment there was not a very large attendance. The President, Dr. Mills, having left the district, was not present, his office being assumed by the Vice-President, Dr. Bentley, of London. Addresses of welcome were delivered by Dr. Hart and Mr. Waters, Mayor of Brantford. The President's address called forth a good deal of discussion, especially that portion relating to the honesty of dentists in their advertising. It was the opinion of many that if the Board had power to grant a license it should also have the power to take it away. A good moral character is needed only to obtain a license not to retain it. To exemplify the necessity for

protecting the public from barefaced dishonesty among dentists, a case was cited of a patient having sixteen gold crowns put on his teeth, for which he paid one hundred and twenty-eight dollars. Twelve of the sixteen crowns have been removed and were clearly not necessary, and the chances are the remaining four were just as unnecessary. This patient not only paid his money for no purpose but also suffered much pain in having the approximate surfaces of his teeth mutilated so that they can never again be made comfortable. The occlusion was completely destroyed while the crowns were in position, and the teeth so sore that he could not masticate and was compelled to go to another dentist to get relief. In the opinion of those present, a dentist who is so glaringly dishonest should have his name struck from the rolls of the college. If in the law society a member may be struck from the roll for not paying his debts or for being short in his accounts with his clients, surely the dental Board ought to strike from its rolls the member who regularly obtains money from a confiding public for operations which are not only unnecessary but distinctly harmful and detrimental to the health of the patient. At the close of the discussion a committee was named to memorialize the Board to take some action to protect the public from its dishonest members.

Dr. W. A. Piper, of London, read a paper on Porcelain, which was discussed by Webster, Ballochey, Babcock, Wilkinson and Hart.

Dr. Wilkinson read a paper on success in dentistry.

A telegram stated that Dr. Thornton would not be present, so after the election of officers the meeting adjourned to meet at Dr. Watson's office, at 9.30 Thursday morning, to see the making and insertion of a porcelain inlay. After the clinic by Dr. Watson the members visited some of the large manufacturing plants, which have made Brantford famous.

DENTISTS AND NOSTRUMS.

Here is a list of dentists who use and recommend a proprietary abscess cure. So many names are published as recommending all kinds of things, without proper authority, we ask if the following list is correct. We may be inclined to make a few remarks on the subject if deans of colleges begin to push nostrums, and, if they do not do so, they should make a few remarks to those who use their names without authority.

We used AB-KON-KER in our practice and recommend it to the profession:

- | | |
|--|--|
| B. J. Cigrand, M.S., B.S., D.D.S.,
Dean of Dental College U. of I.,
Chicago. | Dr. T. A. Goodwin, Ex-President
Indiana Dental Association, War-
saw, Ind. |
| R. P. Chandler, D.D.S., Member
State Board Dental Examiners,
Reno, Nevada. | Dr. T. W. Robson, Whitehall, Mich. |
| Dr. J. H. Palin, Vice-President, South-
western Michigan Dental Society,
Grand Rapids, Mich. | Dr. Clark R. Rowley, ex-Member
Illinois State Board, Niles, Mich |
| Dr. S. B. Hartman, President North-
ern Indiana Dental Soiety, Ft.
Wayne, Ind. | Dr. Jessie Filmar, Buchanan, Mich. |
| Dr. C. B. Roe, 98 Lincoln Ave.,
Chicago. | Dr. F. H. Essig, President Michigan
Dental Association, Dowagiac,
Mich. |
| Dr. S. W. Honey, President Twin City
Dental Club, St. Joseph, Mich. | Dr. J. J. Green, Vice-President Mich-
igan State Dental Association,
Ionia, Mich. |
| Dr. J. F. Werner, Ex-Secretary Ind-
iana State Dental Association,
Elkhart, Ind. | J. A. Watling, D.D.S.. Ex-Professor
Operative Dentistry, U. of M.,
Ypsilanti, Mich. |
| R. C. Brophy, M.D., D.D.S., Prof.
Pros. Dentistry, Chicago College
Dental Surgery, 8 So. Halstead
St., Chicago. | C. S. Terry, D.D.S., 103 State Street,
Chicago. |
| | F. B. Adams, D.D.S., Ex-Secretary
Northern Indiana Dental Associa-
tion, Elkhart, Ind. |
-

GRAY'S ANATOMY.

A new edition of Gray's Anatomy is announced to appear about midsummer embodying nearly two years' work on the part of the editor, J. Calmers Da Costa, M.D., and a corps of assistants. More than four hundred new engravings have been prepared for the work.

NATIONAL DENTAL ASSOCIATION MEETING.

The National Dental Association meets in Buffalo, July 26th and 27th. Ontario is represented on the programme by H. R. Abbott, A. J. McDonagh, J. F. Adams, J. H. Ross, W. A. Brownlee and J. R. Mitchel.

Dominion Dental Journal

VOL. XVII.

TORONTO, AUGUST, 1905.

No. 8.

Original Communications

THE FACES OF PLUGGERS.

BY EDWARD A. ROYCE, D.D.S., CHICAGO.

Read by Dr. Cattell before the Institute of Dental Pedagogics.

The importance of plugger faces can hardly be overestimated. By their size they control the condensing force delivered to the gold. By their surface, either smooth or serrated, they, to some extent, control the density of the filling, and by their shape they almost entirely control the direction of the force delivered to the gold.

As the amount of force that can be successfully resisted by a tooth is limited, if you wish to increase the condensing force of the plugger it can best be done by reducing the size of the face. If a pound of force is delivered to a plugger, the face of which is one millimeter square, the particles of gold will receive one pound of force, while if the plugger face is two millimeters square, the gold would still receive only one pound of force, but as the force would be distributed over four times as much gold the same amount of gold only receives one-quarter as much force as it would under the first conditions, thus reducing the condensing quality of the force three-quarters. This subject has been ably discussed in the past by others, so we will pass on to the consideration of the surfaces of plugger points, whether smooth or serrated, both of which have their advocates.

Dr. C. A. Hawley, of Columbus, Ohio, read an admirable paper before the Ohio State Dental Society, in 1901, detailing some experiments which seem to prove that gold condensed with smooth points was more dense than that condensed by serrated points. This may be all right theoretically, but my experience has been that clinically the serrated points are more practical, because, in the use of smooth faces, there is

a fine point between condensation and burnishing which is very difficult to distinguish, and few operators have become sufficiently expert to thoroughly condense their gold without burnishing; therefore, most of them prefer finely serrated points, as they leave the filling in better condition to receive the next piece of gold.

I have only briefly called your attention to these two important features of pluggers, as the third one, the shapes of plugger faces, I have been requested to give more in detail.

It is a fact conceded by all that the mission of a gold filling is to mechanically stop a cavity, so that no fluid can penetrate between the filling and the cavity wall. This being the case, our efforts should be directed to find and adopt methods which will enable us to most thoroughly calk the cavities.

It is easy to build up cohesive gold into a dense filling, but with the methods in general use it is exceedingly difficult to make a perfectly fitting cohesive gold filling. The adaptation of non-cohesive gold to the walls of a cavity is always held up to us as an ideal; therefore, let us consider the methods used that bring about this ideal stopping.

Non-cohesive gold, as you all know, is used in strips, mats or cylinders, placed in the cavity in such a manner that they will reach from the bottom to a little above the enamel margin, and the gold is then condensed by forcing a tapering or wedge-shaped instrument down between these mats or cylinders thus forcing them to the sides. The opening made by the plugger is then filled with gold, and the gold is again wedged to the sides, and this process is continued until the required density is obtained. Now, let us find out how force is delivered to the gold by the faces of this wedge-shaped plugger. A safe rule is this: Force is delivered nearly at right angles to the face at the point of delivery. Just here let me say that in connection with these illustrations I am obliged to quote from papers presented by me to local societies, for mechanical illustrations cannot be varied.

A wedge is a double inclined plane. The inclined plane in its resistance to gravity resolves that force into two forces, one of which is perpendicular to the face of the plane, and is destroyed by the plane; the other force is parallel to the plane. The law given in Quackenboss for the wedge is like this: The force is increased as many times as one-half the thickness is contained in the length of the wedge, so if a wedge is two inches thick and ten inches long, one pound blow upon that wedge causes the wedge to exert ten pounds of force, and that force is exerted at perpendicular or right angles to the plane. If one pound of force is exerted upon the wedge, it moves in the line of impetus until it meets a resistance of one pound in a direction opposite to the line of impetus, or is acted upon by some other force, according to Newton's second law of motion, but this law does not control the delivery of force by the wedge. I have in my possession a wedge-shaped instrument that has been used by me for a gold plugger for some time, measurements of which show that its length is six to thickness two. Now the force is increased as many times as one-half the thickness (or one) is contained

in the length, which is six; so if I exert one pound of force upon the plugger to drive it down between the cylinders in non-cohesive gold, I exert six pounds of force to drive the cylinders to the walls of the cavity. Of course, the tooth as related to its socket receives one pound of force, and that pound in the line of impetus.

Let "A-B-C" of Fig. 1 represent the point that is crowded

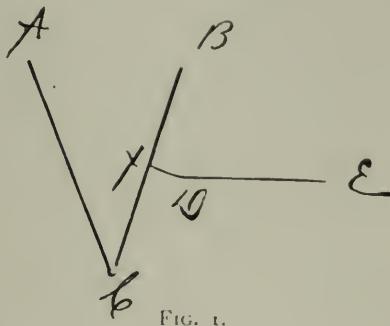


FIG. 1.

into the gold. Now we have seen that the force is given off at right angles to the surface that delivers it. So the force delivered by the surface "B-C" will be delivered in the direction of "X-D" but there is resistance of the gold which is held in place by the bottom of the cavity, so the force is diverted toward "E," making a direct lateral pressure toward the walls of the cavity.

This lateral force is so great that teeth are frequently split by its careless application.

With cohesive gold the wedge-shaped plugger cannot be used, because after the gold is placed in the cavity, it cannot readily be penetrated by a wedge-shaped point, and if it is so penetrated, would not

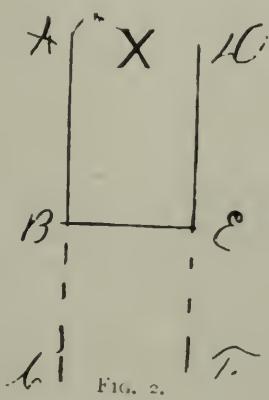


FIG. 2.

adapt itself to the walls of the cavity on account of its rigidity. So, when filling with cohesive gold, a plugger with a flat face was adopted and lateral force abandoned, and each piece of gold was supposed to be placed in the exact position it was to occupy.

Let "X" represent the plugger for cohesive gold. The force delivered to "X" by a blow is conveyed to the gold at right angles to the

face delivering the force. So the force in this case is projected straight ahead of the plugger.

Lines "A-B" and "D-E," show the boundary and direction of the force, and lines "B-C" and "E-F" show the boundary of the practical effect of the force. With a flat-faced plugger it is not possible to obtain any lateral force unless the point is directed toward the sides; in case that is done, dents are made in the gold by the corner of the plugger, which it is a practical impossibility to fill. If any spreading occurs under a force from this point it must be deep in the filling.

Another, and very important, plugger face which we must consider

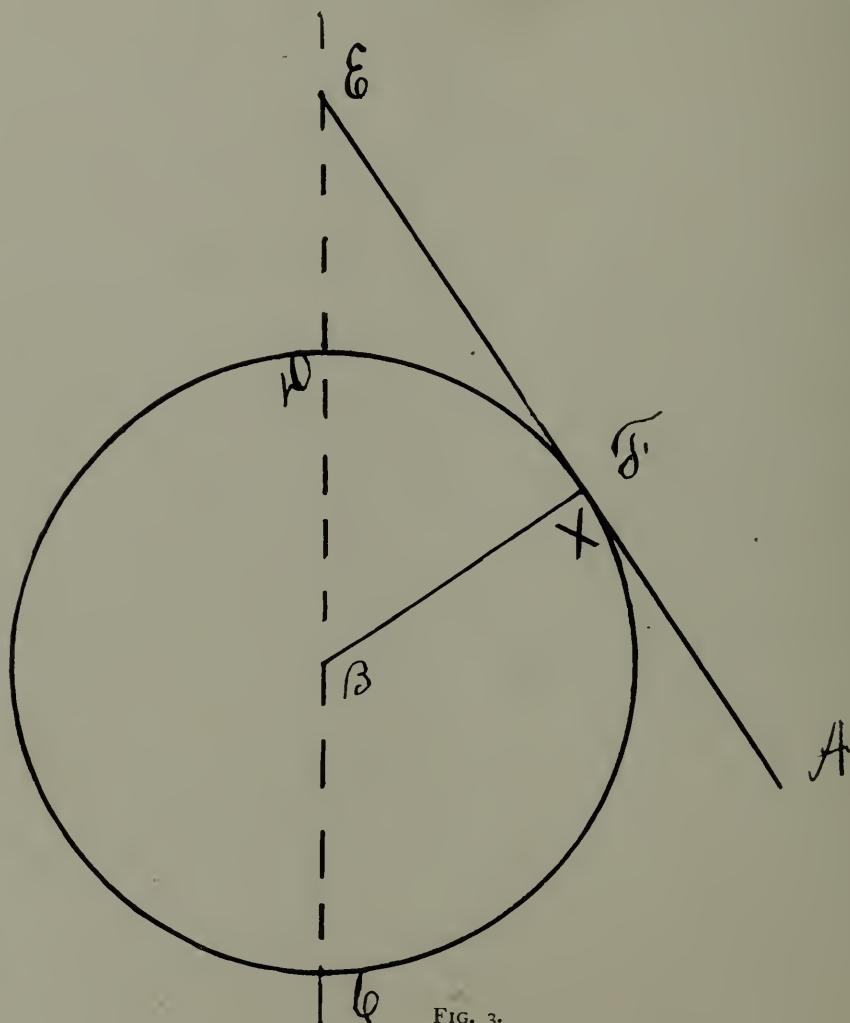


FIG. 3.

is the convex. There are a great many different forms of convex faces, but after the principles that control the workings of the convex point are understood, it will be easy to select the form best suited to the work required. Every point on the surface of a convex plugger is a point in the segment of some circle, and that circle can be formed by extending the segment; so if we can find the direction of the delivery of force from the point in the circle, we will have the direction of the delivery of force for the point on the surface of the plugger face.

We will draw a circle and let the diameter "D-C" represent the line of force and select point "X" as the point for the delivery of

the force and draw radius "B-X." Through the point "X" we draw a tangent to the circle; it will give equal angles and right angles, "E-X-B" and "B-X-A"; extend "D-C" till it intersects tangent at "E"; now the point "X" is not changed a bit in position, form or relation to the line of force, which relation is shown by line "B-X" but it has become a point for delivery of force, not only for the circle, but for the inclined plane "E-A," and the force is delivered at perpendicular to the plane. The same point delivers the force for the circle that delivers it for the plane, and the relation to the line of force is the same in both cases; therefore, the delivery will be the same, and the force will be delivered in the direction indicated by the extensions of radius "B-X," which is also perpendicular to the plane before spoken of.

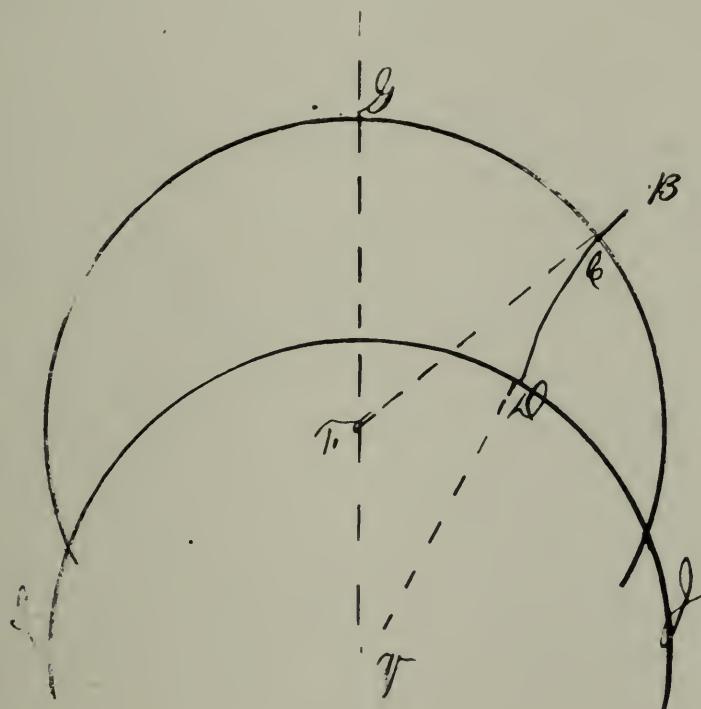


FIG. 4.

In illustration No. 4 a disk represented by half circle "I-J," was pushed up to the point represented by "G"; at point "D" of this surface a lead pencil was held lightly by a finger placed upon its top in such a manner as not to influence the direction in which the pencil moved. As the disk was moved up, the pencil mark the mark "D-C-B." It is readily seen that "D-C" is almost an exact extension of the radius "D-Q," and that the line of "C-B" is an extension of the radius "F-C." Line "D-C-B" curves as it progresses, and the curve increases just as the point that delivers the force changes its position upon the circumference of the circle.

The diverging force of a convex point meets the resistance in the filling, which converts it into a lateral force, in the same manner as in the case of the wedge. This can be figured out mathematically, but it can also be shown conclusively by demonstration.

Line "A-B-C" represents a disk, the line of force being "X-Y." A lead pencil was held upright at "B," as in Fig. No. 5. As the disk moved forward, the pencil point was forced out to point "G," at which place it met resistance of a card placed at right angles to the line of force, and the force was diverted, so as to send the pencil parallel to the edge of the card and toward "E." This shows exactly what occurs when force is exerted in a direction divergent from the line of force.

The foregoing demonstrations show that force delivered by a flat face is distinctly a driving force, as distinguished from a spreading force, the gold being carried directly ahead of the point, and any lateral force, which may be given, is deep in the filling. When this shaped face is used the gold must be placed just where it is wanted, and the plugger so directed as to drive the gold straight ahead of it, and as the gold is

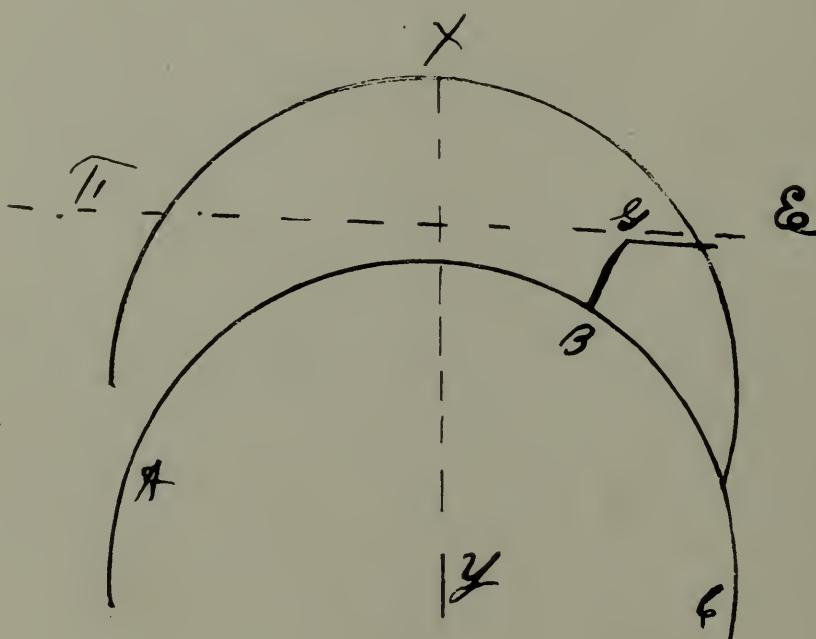


FIG. 5.

condensed in other parts of the cavity, the tendency is to draw or curl the gold away from the walls of the cavity by driving it down in the centre.

It was well said by Dr. S. G. Perry, of New York City, in a recent paper upon gold fillings, that "Most operators make their fillings unnecessarily homogeneous and strong, but no operator ever made a filling fit too well."

I would lay particular stress on the fact that "no operator ever made a filling fit too well." With the methods in common use, the direction of force is such as to make it almost impossible to make a perfectly fitting filling. Now, if we can change this so as to make the tendency of the gold to travel toward the walls of the cavity instead of away from them, is it not our duty to do so? If a mechanic wishes to spread a rivet, he uses a hammer with a convex face to do it. If a gold-beater wishes to spread gold to make foil, he uses a convex hammer. If a

dentist wishes to calk or plug or stop or fill a cavity in a tooth, why does he not do it according to the laws of physics, and use a convex plugger face?

The demonstrations I have made certainly should convince anyone that there is merit in properly-shaped convex points, and by their use cohesive gold may be made to perfectly fit a properly prepared cavity by the intelligent application of the spreading force; or perhaps it would be more proper to say the combination of a spreading and driving force; the spreading force, on account of its tendency to force the gold toward the walls of the cavity, and the driving force for the solidity of the filling. As it may not occur to you at this moment, the shaped face which will properly condense gold and at the same time give lateral force, I will give you the outline of a plugger face that is largely used for this purpose.

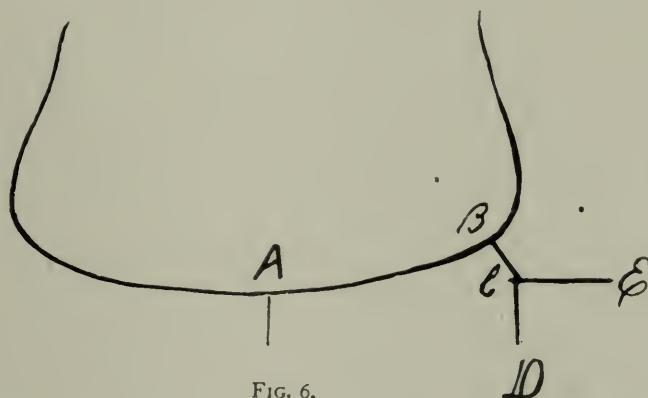


FIG. 6.

Now, if we subject this point to the same study of forces, what do we find? Force given off in the center at "A" will be delivered on a line with the resistance, so the force will be projected directly ahead; but at either side of the center the force is given off so as to force the gold in a direction at a greater or less angle to the resistance, as at "B" to "C", and it meets the resistance forming the angle "B-C-D."

Now, however obtuse this angle may be, if the direction of the force and the resistance are not in a continuous line, the force will be diverted, making lateral force of it and causing the gold to spread at every blow of the mallet. The spreading under force of this kind is not a spreading deep in the filling, but at the surface upon which the force is delivered.

On the face of this plugger, or what might be called the working face, as it is not so much rounded, cross serrations are used, and they will have a tendency to lessen the spreading force and increase the driving force, but at the sides, where the lateral force is greatest, there are no cross serrations, so that the spreading force is not in the least diminished.

The question might arise as to our ability to spread the gold with the force used in filling teeth. It seems unnecessary to argue this at the present time, but I will simply state that it can be done, and I have exhibits with me which I will be glad to show to anyone.

That this method of manipulation will assist us to make our fillings fit is no longer a matter of speculation—it is known to scores of operators who have been using it for years, and a most striking illustration of the work done by this shaped plugger point is the fact that in the infirmary of one of our best dental colleges the number of fillings malleted loose during the process of condensing gold in the cavities has been reduced one-third, simply by the use of convex points.

When you remember that this change has been brought about by students who are novices in the art of dentistry, and who have not had the advantage of years of study and work as to the best methods of using gold—we are obliged to confess that it is not their skill or ability which has wrought this change, but that properly shaped instruments have been placed in their hands, and they have been taught the laws and mechanical workings of these instruments, and thus are able to avail themselves of the proper force (whether condensing or spreading), and to use that force in the proper places. If such results are accomplished in the hands of novices, what might we not expect of men skilled in the use of fine instruments, and accustomed to doing fine work, if they would make a study of the laws of physics, and conscientiously prepare themselves to take advantage of everything that will advance the standard of their work? I am not alone in hoping to see applied physics one of the prominent studies in the curriculum of every dental college. Those who have studied mechanics, realize its importance to the dentist, and the students who are taught the laws of physics and the control of force will be able to do their work more intelligently and therefore more perfectly. If a man who has been working with flat points for a lifetime should take up a convex point, he would naturally use it as he had been accustomed to use the flat plugger, and if he expected his cohesive gold to at once fit into the cavity, he would be doomed to great disappointment, for no such thing would happen. But if he will study carefully and intelligently the mechanical laws that govern lateral force, and obey them, he will be happily surprised at the ease with which cohesive gold may be made to submit to his will.

DISCUSSION.

This matter of force is nicely illustrated by

**Dr. A. G. Friedrichs,
New Orleans, La.**

Dr. Royce, and it is exactly what happens. The instruments which I use are conical-shaped pluggers, round pointed, varying in size. No manufacturer has thus far kept these pluggers on hand. You must make them yourself or order them to be specially made. The kind of pluggers we use are on the wedge-shape principal, and I have always contended that with a soft foil we could be more sure of a perfect adaptation than by any other method. As an illustration of that I have the evidence in my own mouth. I have a lot of soft foil fillings, none of them less than twenty years old, put in according to the cylinder method devised by Dr. J. S. Clark. What was said about the operation of force, went abso-

lutely in line with what is demonstrated in my mouth. By using the wedge method, and force on that principle, and soft foil, the gold can be spread and you can be absolutely sure of getting a perfect filling.

I would like to ask how the lateral walls can

Dr. J. D. Patterson, be made as perfect as they might be with a more
Kansas City, Mo. square-pointed plugger. We shape the cavity in

such a manner that it seems to me these convex points are not applicable in perpendicular lateral walls. How can as good a joint be made at the periphery of the cavity with these pluggers? These pluggers are better adapted to the old form of concave surface at the cervical part of the cavity, but not to a cavity shaped as we make them now. I have tried these pluggers and have failed in making as good a joint without having recourse to the square or nearly square foot shape.

The essayist tells us that with a flat-faced

Dr. M. C. Marshall, plugger we are liable to drive a hole into the
St. Louis, Mo. gold. I think that any gold put into a cavity as

susceptible of having a hole driven into it by a flat-faced plugger, has been put there through ignorance. I believe one of the principles of filling a cavity with cohesive gold is to condense the gold, unless you wish to fill the cavity largely with non-cohesive gold and then finish up with cohesive gold. The law of force as applied here can be modified by the crookedness or straightness of the shaft of the plugger. He talks about one pound of force being produced on the face of the filling. I think that would be modified largely by the plugger. I try to have all crooked plugger shanks eliminated and to use one as straight as possible to get the proper force at the point of the plugger, and I teach that the preparation of the cavity should be such that you can reach those lateral walls perfectly well, in the majority of cases, with a straight shaft plugger, and not to use curved pluggers in all cases where they can be avoided. I have never been able to get the best results with convex faced pluggers, and students should not be taught anything that they are not expected to use and develop in their practice, or that will tend to make them more deficient than they are. We should teach them to use flat-faced pluggers with straight shafts, and I do not believe that gold properly condensed into a cavity by a flat-faced plugger is susceptible of having a hole punched into it by any reasonable force.

There is nothing in the paper that had any

Dr. Cattell bearing on Dr. Marshall's remarks with reference to driving a hole into a filling.

Dr. J. D. Patterson. I beg your pardon, there was.

Dr. Royce was not talking about the blow or force that hit the end of the plugger up at the handle, but the force that the face of the instrument is conveying to the gold. It is the force

delivered to the gold, not that which the mallet gives against the end of the plugger.

Dr. Cattell.

**Dr. S. H. Guilford,
Philadelphia, Pa.**

We must recognize that we have here two different conditions. In the first place, in the application of force if done by hand pressure, and in the case of the mechanical plugger it is done practically by mallet force. In filling with non-cohesive gold, and using an instrument shaped on the wedge plan it is pressed from side to side in order to condense the gold. Now, at the point of the instrument there will be little condensation, but more and more at the surface. That is the idea in packing non-cohesive gold with wedge-shaped instruments. With the use of cohesive gold we propose to make the filling dense from the bottom up, every part as nearly alike as possible, and here is where differently shaped instruments come into play. I teach my students that with square-edged instruments there is danger of tearing the gold, and besides we are not so sure that we get the gold thoroughly united. The way to overcome that is to eliminate the edges. If square-faced pluggers are used the edges should be rounded. Another point is to get the force in the different directions. I have used these convex pluggers for many years, and I think the principle of their construction is correct. The illustrations demonstrated that, and I do not see how we could have force applied to better advantage in the condensation of cohesive gold than by the Royce convex-faced pluggers. They appealed to me the moment I saw them, without any demonstration, and I am satisfied with their working in every way.

Dr. Patterson.

It is an important question to decide whether this procedure is a good one to teach. I do not believe it is.

**Dr. A. W. Thornton,
Chatham, Can.**

This discussion emphasized the fact that a chair of physics is somewhat of a necessity in a dental college. The question propounded by Dr. Patterson is one which would naturally arise in the mind of every thoughtful teacher. How can you pack gold into a square corner with a round instrument? If there is a man in the profession who has given the question of physics more attention than any other man, it is Dr. Black, and he and Dr. Patterson are running parallel. He advocates the use of square-ended instruments in packing amalgam rather than the round or bald-headed instruments we have been using. When you come to deal with this question mathematically, it seems to me that Dr. Patterson is correct, and this is the view students will take when we attempt to demonstrate that from the chair.

**Dr. Edmund Noyes,
Chicago.**

This last question is a simple one. When we talk about square corners, if we carry the angle of the cavity to a sharp right angle, it seems to me that it is plain enough that the angle of our plugger point must be as sharp as the angle of the cavity, but that angle only needs to be rounded a little to correspond with the convexity of these small convex faced pluggers. The relation between the two is important and should never be overlooked.

Dr. W. M. Randall,
Louisville, Ky.

These are important points that bear closely on the subject of physics. We have two general classes of plugger points, those used for non-cohesive gold and those used for cohesive gold. As

I understand it, the latter class may be round, convex or square with flat surfaces, and those used for non-cohesive gold should be wedge-shaped blades, related to handle at different angles. I think the one is just as important as the other. It is a serious mistake that most colleges do not teach the principles involved in filling cavities with non-cohesive gold. The question is, how can we best teach our students the technique of these different operations. That is a most important question for this body to consider. I think the paper explains some of these various principles to a nicety and it would be well for each professor to have such charts as these showing the results that can be accomplished by the application of the truly physical principles involved in this very important phase of operative dentistry. In teaching the use of non-cohesive foils I have used large models, not attempting to show the manner of condensation nor the amount of force used, but simply to illustrate the principle. The first impression conveyed to the student is the most lasting one, and if he gets the proper idea in the beginning, he will have no trouble in understanding the practical ideas of these models later in his course. How often you can see a senior who has not studied the working of non-cohesive foil, but who has thoroughly mastered the cohesive. He attempts to insert a non-cohesive filling and almost invariably fails. I think the non-cohesive material should be taught in our technique courses as well as the cohesive. Tin foil will carry out this idea from beginning to end as well as any substance I know of; almost equally as well as gold. In conjunction with the large models of cavities I use cotton rolls to represent the rolls of gold and tin, and specify that these should be at least one-third longer than the cavity is deep. If the cavity is a large one, roll the gold sufficiently large, say one-twelfth the diameter of the cavity, thus inserting twelve of these cylinders. Then I take a large model wedge-shaped plugger and go through the procedure of inserting a non-cohesive filling, showing why that plugger is the proper one, and which pluggers should be used for cohesive material in the various steps of the filling process and in the different classes of cavities.

Dr. Edmund Noyes,
Chicago.

It seems to me that the most important consideration with regard to the face of the plugger has not been mentioned in the discussion, and only alluded to in the paper. I mean the size of the

plugger points, the amount of surface of gold covered at each application. If the use of pluggers with convex faces carried with it the tendency to make plugger points a little larger than they are now the possible advantages of that form would be more than neutralized by the increase in size. There is a question in my mind whether the nice adaptability of forms to uses has been improved in this particular since the set made by Royal W. Varney. His adaptation of sizes of plugger

points to the force that can be used on a tooth was almost final and ideal. It is my belief that three-fourths of the students and practitioners use plunger points too large to accomplish thorough work.

One gentleman said that he thought a chair

Dr. H. E. Friesell, of physics should be established in each college.
Pittsburg, Pa. I think we could say that a chair of physics might

with advantage be established in the Institute of

Pedagogics. I think Dr. Patterson referred to the packing of gold between two parallel walls. Dr. Guilford said that the small size of the round plunger point enabled him to pack the gold perfectly against a flat wall. I do not agree with him. I require a flat-faced plunger. I teach my students that the inherent properties of the gold are worthy of consideration. You can take a piece of gold (that has the properties of malleability and ductility) and by striking it with the face of a hammer held at a certain angle, you can drive the molecules of gold to any corner. You can do that with the gold in the filling. The way to pack gold against a flat wall is to pin the gold to be placed to the middle of the gold already placed, then step the plunger toward the wall. In this way the gold is wedged down tight and condensed against the wall in the same way as it spreads under the hammer of the gold-beater. Five or six pounds of force are more effective with a fine-pointed plunger than twenty pounds with a plunger four times as large. No matter what gold students are using, teach them to put it into proper position. With the Royce plunger and a straight shaft the force is in a direction parallel with the long axis of the instrument. If you hold the plunger tight against the gold it cannot drive off and burnish the gold, but the serrations have a tendency to pull the gold away from the margins rather than force it to them. In my practice I occasionally have use for a Royce plunger. I cannot tell you just where, but I have use for it once in a while. Dr. Marshall spoke of using a straight-shafted instrument; in 95 per cent. of cases it should be used, but there are cases where you cannot use it and get the gold perfectly applied without cutting away an unreasonable amount of tooth structure. I always instruct my students not to use a ball-headed plunger handle; but a square one to be struck square in malleting. If you use a plunger with a bayonet-shaped shank you can drive gold into the axio-labial angle.

It occurs to me that you are teaching mallet

Dr. J. Q. Byram, pressure and not hand pressure. Everyone has
Indianapolis. spoken of the direction of force with the blow of
the mallet. We have our students get flat-faced

plungers and convex-faced plungers. We teach them at the side of the cavity, the gingival wall should be at right angles with the buccal and lingual walls, and we have them get plungers that form such angles with these cavities. If we do not form an angle, our oval-faced plungers come in to good advantage. Most of the force should be directed to the seat of proximo-occlusal cavities with the hand, and if that is done, I do not

see why there should be so much trouble in condensing the filling against these walls. For amalgam pluggers I buy blanks and have the boys make up a set, and I find them a very valuable adjunct to the technic course. It is not only inexpensive, but it gives them a set of pluggers better than they can buy. They are made on the same principle as Dr. Royce's pluggers, except they are not serrated.

There is some physics in this question after all, and while we do fill teeth and get results in our teaching, we must teach eternal principles.

**Dr. A. W. Thornton,
Chatham, Can.** There is only one exact science, and that is the science of mathematics. Take a square corner and put a flat instrument against it; you will find that the upright wall and base will be closer to the plugger point than the extreme angle, and the gold will be condensed to the limit at these points but not in the angle. So that while there is a practical side to this question, there is a mathematical side as well.

I feel very much discouraged because but few things have been said that had any relation to the paper. I do not like to read a paper and have everything discussed except the paper. The sub-

Dr. Cattell.

ject of this paper was "The Face of Pluggers" and not whether we should fill cavities with cohesive or non-cohesive gold, or other subjects talked about. This paper is not on "Dr. Royce's plugger" and he is not talking about his plugger. He is talking about the *face* of a plugger and the force that comes from that face and is delivered to the gold, and what will happen to the gold when the force is delivered. Drs. Black, Webb, Butler and Atkinson and others made convex-faced pluggers years ago. The convex-faced plugger is a modified wedge, we cannot get away from that fact. Some of you talked about the shaft. What part is the shaft? You mean the shank. There is a difference between them. And another one mentioned something about the lines of force following the line of the shank. I always supposed that no matter how crooked the shank of an instrument, the force always travelled in a straight line from reception to the point of delivery. It does not turn corners or follow curves. In our laboratories if we want to spread a piece of gold we use a convex-faced hammer. If we want to spread the head of a rivet, we use a modified wedge; if we want to lengthen a wire, we use a pair of pliers that have convex-faced beaks. We teach our students about all that. We tell them how gold-beaters spread gold under the force of convex-faced mallets, yet when we teach them how to fill cavities with gold, we forget all about laws of force. We never tell them that the gold can be spread as easily there as in the laboratory. The force delivered by a convex surface changes the direction of the movement of the gold so easily and so readily, and yet we do not teach it. It is so little understood by the profession that Dr. Royce, and others, have taken occasion to speak and write about it often. As to the size

of the plugger points: How many of us tell our students that every time they change the instrument from a small-faced plugger to a large one they must change the amount of force delivered to the gold, or rather change the amount of force delivered by the mallet. We wish to condense gold. It requires a certain number of pounds pressure to condense a certain surface area of gold. Let us say we are condensing it with a small point; then we change to a large point without increasing the amount of force delivered by the mallet. Are we condensing the gold as before? No. Let me refer to a paper I read a few years ago on that point.

"For condensing the main portions of a cohesive gold filling the impacting area of the plugger should seldom be more than one square millimeter, and generally plugger points of one-half to seven-tenths millimeter area should be used. The area of a plugger point is practically the square of its diameter. That is, a point one millimeter in diameter has an area of four times as great as one only half a millimeter in diameter. Five-tenths multiplied by five-tenths gives twenty-five as the area, while ten-tenths multiplied by ten-tenths gives one hundred, or four times as much.

"This being true, a reduction of the size of the plugger point below one millimeter increases the condensing power of the impact in proportion to the reduced area, and increasing the point above one millimeter diminishes the condensing power of the impact in proportion to the increased number of squares of area. Twenty-five pounds of impact or pressure on a point one-half a millimeter in diameter is equal in condensing power to one hundred pounds upon a plugger point one millimeter in diameter. Therefore, to make solid fillings, small condensing points must be used. We must not, however, use points that are so small that they will penetrate the gold and chop it instead of condensing it. Therefore, we should not use heavy blows with very small plugger points. For some special places about margins, or packing in delicate grooves, a smaller point used with lighter force is useful. And occasionally a larger area than one millimeter in the form of "a foot plugger" may be useful in packing over certain cavo-surface angles."

Royce refers to earlier teachers, and I have looked up the Dental Cosmos for 1896 where a paper is published on the specific gravity of gold fillings written by Dr. Black. "The specific gravity of gold is 19.3—19.4. Fifty experimental fillings were made in steel dies by as many operators all over the country. The specific gravity of these fillings ran from 12.53 to 18.74, an average of 16.79. It was shown that fillings of less specific gravity than 15 would not stand the stress long, hence the necessity of using the smaller faced points and heavier malleting or continued malleting. *Condensation* is the important point in preventing movement or dislodgment. Fillings less than 15 specific gravity are so porous as to imbibe moisture and small particles of food, and they soon become foul.

A filling 12.53 specific gravity requires only 15 pounds to reduce

its length 2.5 per cent.; while one of 16.26 specific gravity requires 225 pounds pressure to reduce it 2 per cent.

These experiments were carried on very carefully, and many fillings turned in were so porous, so low in specific gravity that they practically could not "stop" a cavity.

Again, if gold is not condensed sufficiently, it will spread out and move from its position. The size and face of the plugger, and the force and delivery of the blow have all to do with getting the proper specific gravity, and all this should be gone into thoroughly with our students. They are intelligent men, and these problems of physics should be given them most carefully. If we give them the principles they will soon learn how to apply them, but if we simply talk about making fillings with this or that kind of instrument without explaining why we do it, they are in the dark, just as many practitioners are to-day, and I fear as many teachers.

"RECREATION" IN DENTAL COLLEGE EDUCATION.

BY J. D. PATTERSON, D.D.S., KANSAS CITY, MO.

Read before the Institute of Dental Pedagogics.

Recreation is unquestionably demanded for the physical and mental well-being of men and women. Especially, however, for those in early life and those physically or mentally overworked. But, in our discussion to-day the purport is not to enter upon the broad question, but only the part of it that premises that recreation is needed by students in dental colleges and should be provided for them.

The subject is not of my own choosing. I am, and have been, interested in many departments of dental training, and upon one or two my friends say I am over-enthusiastic; but as to the subject of recreation for our students in dental colleges I have scarcely given it a thought and now it does not greatly appeal to me; for I have usually thought they had too much of recreation or, at least, the opportunity for it. I presume your Executive Committee in assigning to me the subject, had in mind the idea of a hard-worked dental student whose intolerable grind was sapping his physical and mental equilibrium, and that in this emergency it was the duty of the officers and the faculty of the college to devise and furnish methods to alleviate the dire difficulty. In some instances this has resulted in well-meant efforts to correct a supposed evil, and gymnasiums have been provided for physical exercise. The football clubs have been formed, smoking and billiards provided and other evidences are seen of efforts to supply the want evidently referred to by your committee.

An individual opinion upon a question is sometimes, I know, of very little account. A contrary opinion upon questions already satisfactorily settled receives, and should receive, no attention. But the question of "Recreation" in dental education is certainly an open one, and as it is new to the writer, our individual opinion, if fortified by good observation, is entitled at least to a hearing.

The writer has long known that something is very wrong with the average dental student; that there is an indifference, lassitude or indolence, which has worked against his advancement in the acquirement of skill and knowledge. If it is a lack of the necessary relaxation, then let us have the recreation, so that the objection may be removed. If his technical manipulation and technical study and repetition has seen to stupify his brain, then let us, for conscience sake, seek to remove the impediment if furnishing "recreation" will do it.

But, our observation has led us to believe that the all-prevailing nerveless condition of the dental class is consequent upon other and more serious problems, and which cannot be corrected by any "recreation" known in ancient or modern days.

I believe that our students are compelled to loiter and become lax because sufficient tasks are not given them, and apparently require "recreation," simply because so little is required of them. Instead of "recreation," what is demanded is that more to do should be given them and that double the number of teachers should superintend their work. From time immemorial it has been proved that *change is the best recreation*, and the change from one to another of the very varied operations and technic necessary to equip the students for practice, and a change in his demonstrators, furnishes the *best* of "recreation."

Careful observation convinces that the dental student works little more than three or four hours per day. Many of them not so long, and this includes attendance upon lectures as well as infirmary and technic work.

The dental student is past the period of adolescence; when he comes to the college his "play spells" need not be so regular as when his brain, nerve and muscle was in rapid formative growth, and an equilibrium could not be maintained without recreation and rest which permitted relaxation. The dental student is not an unformed animal whose easy tasks are of necessity irksome. What he should have, what he should be *compelled* to do is at least eight hours of pretty continuous work. His days of adolescence are over—his preliminary qualifications are accomplished. He is entering upon a professional study which has peculiar demands on account of the knowledge asked, of the nicety demanded of the directing brain and eye, and of the obedient hand, requiring the trained touch only found by constant and painstaking repetition extending over many hours and many days. This ability *is not* brought to the possible perfection in the months of the dental course as now covered; and the doubling of working hours, and the repetition of that work under twice the number of demonstrators is the only method known to the writer which will produce what we should and do desire.

This is the "recreation" which will bring the product we should and do desire. *This* is the recreation which, in my opinion, is most demanded, and not the gymnastic! This is what is needed by students to fill in the hours devoted to loitering which produces *ennui* just on account of the lack of a sufficient number of tasks and teachers. Double their number and repeat and change the drill and work, that alone brings dexterity, and the cry for "recreation" will not be heard.

No student ever was—nor ever will be—injured by such a system if there is the smallest latent desire to become adept and reach success in dental practice in later life.

This is the key-note of this essay, and it adds to the line of argument given by the writer one year ago during the meeting of this Association at Buffalo, N.Y., viz.: That no possible movement would so rapidly show advancement and be so productive of good as the increase in tuition fees in dental colleges, so that betterment and additions to the staff of demonstrators would be rendered possible.

At the 1905 meeting of the National Association of Dental Faculties the resolution providing for an increase of fees in dental colleges of this Association to one hundred and fifty dollars a term comes up for passage. VOTE FOR IT—WORK FOR IT—so that you can afford additional and better teachers and give to them a reasonable remuneration and thus do away with any possible clamor for "recreation," which ever is the plaint of those who have "nothing to do."

DISCUSSION.

Dr. J. H. Kennerley, I wish to congratulate the doctor on his paper. I believe that he is right in everything he said. It is the lazy man who needs recreation and

St. Louis, Mo. not the man who has all the work he can do. I heard of a certain railroad president who needed some statistics in a hurry, and when his secretary asked him to whom he should assign the work, he said "Give it to the busiest man in the office." Such men do not need recreation. I believe the increase in fees will give us much better results. We will be able to employ more and better teachers so that we can keep our students busy all day long. There will be less cry for recreation. Two years ago our college established a students' club and furnished the members will all kinds of amusement. We served meals at a very low price; we had baths, pool and billiard tables and bowling alleys, for which they paid a very nominal fee. The man who wanted to work, and who was busy all the time, would go there and get his meals and be back at the infirmary on time. But the fellow who did not want to work spent all his time at the club. We could not abuse him because we furnished him with the means to be lazy. The club will now be abolished.

**Dr. J. Q. Byram,
Indianapolis.**

I wish to compliment Dr. Patterson on his paper. It is not recreation that we need in our colleges, it is more work. As Dr. Kennerley says, it is the drone who needs recreation. We usually

have two classes of students, one class that never does any work unless it is driven to it, and the other that does everything it can get to do. In examining our infirmary records we find that the men who are busiest in their infirmary work, are busiest in their technic, and they attend their lectures regularly. The men who are behind in their infirmary and technic work are absent from lectures and never have time to do anything. The trouble seems to be that they have too much recreation. I am about to try a little scheme with our class. My senior course is confined to porcelain work. I have announced to the class that if any cared to do special work after the holidays I would be glad to organize a class and give them the same course that is given to the post-graduates. To my surprise about sixty per cent. of the class reported to join this special class, and they are the busiest men of the class and not the idle ones. That leads me to believe that it is work and not recreation that they need. As to the advance in fees: At the Chicago meeting of this institute there was a symposium on the infirmary method of teaching, and after six or seven deans had discussed the subject, lamenting that they did not have good demonstrators, I suggested that if they paid the demonstrators more they could get better ones, and I am still of the opinion that increased fees will insure better teachers.

**Dr. D. M. Cattell,
Nashville, Tenn.**

Dr. Patterson gave us a good paper on recreation, but he wound it up in a very queer way. I must differ with some of the speakers. My experience has been that our best men need recreation.

Dr. Kennerley's railroad clerk probably died gray-headed early in life. So it is with our students and practitioners. Those men who are always working and never playing die young; if they manage to hang onto life, they have poor health. I do not believe that we are justified in expecting the student who comes from the farm and has been in the habit of taking plenty of outdoor exercise and getting fresh air all the time, to keep right at work and advise him to stay in at night and never take any exercise. We do our students wrong by not looking after their health and seeing that they have proper recreation. I have in mind a boy who came to the South from the North. He was a lumberman, used to hard work. He had failed in his examinations the year before, and he came back determined to win. He neglected his exercise and he got thin, and pale, and bilious. I would go to his room at night and find him studying at all hours. He was so nervous that he could not sleep. I got at him, told him to go out and take exercise or he certainly would collapse. I would go out with him myself, taking long walks, and in a little while he was in good condition again. I have found certain forms of exercise exceedingly beneficial that the student can reach quickly and do in a few minutes and still work off an excess

of feeling and not do himself any damage. I refer to the gloves. I know of no recreation that will do the student more good than a "bout" with the boxing gloves. It is manly sport; gentlemanly sport; full of good exercise and recreation of a character that does no one any harm. In a few minutes he is through and he goes back to his work with his mind clear, and he feels better; he is more active, more vital, and in fit condition to do his work as it should be done. We, as teachers, have the responsibility placed upon us of looking after the student's physical condition, and we have no right to allow the student to become overtaxed mentally and to be spoiled physically.

This is a very interesting question whether we regard it as important or not. The most important aspect of it is some understanding as to what constitutes the duty of the dental school in

**Dr. Edmund Noyes,
Chicago.** respect to recreative opportunities for its students. We are coming to recognize more and more the responsibilities and duties of colleges of liberal arts, who have many students in residence, and who ought to assume some responsibility for the physical welfare of these men, not only in the way of providing gymnasiums and opportunities for athletic sports and exercises, but in providing competent, efficient and authoritative supervision of the students in regard to the use of these matters. I am not prepared to say that the dental school either ought or can assume this duty. It should provide suitable opportunities for study and recreation within its walls so that students can avail themselves of them during the intervals between their regular duties. We do this by providing smoking rooms, which answer for the purpose of rest and the still more important one of acquaintance of the students among themselves. We also provide a library and reading room in which students may study. One thing in the paper surprised me a little (and I am not prepared to agree to it) namely, that most dental students can fulfill the requirements of dental school work in three or four hours a day. I do not believe that any student can graduate from our school if he works only four hours a day unless he is a phenomenon. If one could do so it would be easy to devote six or seven hours a day to outside employment. Some of our students do so, but I have observed that almost all of them are low in their classes and some have to take four or five years to get through the three years' course.

I believe that the dental student who can get his work completed in three or four hours a day needs no recreation. Our men are in college from six to eight hours every day, and in the evening

**Dr. W. E. Willmott,
Toronto, Can.** they must go over the work they had during the day. The dental student, under such circumstances, needs exercise and recreation, and it is the duty of every college to provide such. There is no college that could not provide several pairs of gloves, as Dr. Cattell suggests, and few colleges have not a piece of ground on which they could erect a handball

court. To my mind that is the very best exercise for the dental student. All the muscles are in play, and they go back to their work and do it better than if they are kept in college all day long.

Dr. Patterson.

Some of the gentlemen forgot that I started out with the proposition, "The benefits of recreation, especially for human beings in their adolescent life, and those who are overworked at any time in life is unquestioned." I followed, however, with the proposition that it was not the duty of the dental college to provide that recreation, and I had a counter proposition to make, and that was, that change of work is the best recreation; and that the dental student's work is not hard. The statement I made that the average dental student gets along with about half the work that should be required of him, I still think is the correct one. It seems to me that everywhere students can go where they can have proper recreation for a nominal fee, and do it even if they are worked twice as hard as they are now, but I do not think the college should provide it. Dr. Cattell and others inferred that I argued against recreation. I did nothing of the kind. That was farthest from my thoughts. But I do say that students do not have sufficient change of work, and repetition of work, which brings that digital skill they should have, under more and better paid demonstrators.

IMMEDIATE FILLING OF ROOT-CANALS.

BY W. M. WUNDER, TORONTO.

While recognizing the importance of preserving the pulps in all teeth, more especially in those of immature development, we who have tried for years to cap exposed pulps in every possible manner, with all agents and by all methods, must admit that although great progress has been made in this direction there is not as yet on the market a diffusible, non-irritating, antiseptic capping material under which we can be sure that the pulp will retain its vitality with such certainty, that the dentist may risk his reputation and place over a pulp so treated any expensive or extensive work.

We are therefore compelled to devitalize frequently, and it is my intention to describe the method of filling root-canals which I find most satisfactory.

These cases come to us in the form of exposed but non-putrescent pulps; and putrescent pulps, either involving the tissues beyond the apex or where this region has not yet become infected.

Where the pulp is exposed and the shape of the cavity will permit of cocaine, adrenalin and formalin being used under pressure of wax or vulcanite, it may be painlessly and most satisfactorily removed. Where the cavity is of such a shape that cocaine cannot be forced into the pulp or where pulp-stones are involved, arsenious oxide placed not on but near the pulp will best accomplish the purpose.

The vitality of the pulp being destroyed all cases may be treated in a similar manner. Remove decayed matter and make the cavity into a convenient, and if it facilitates entrance into the canals, a retentive shape, being careful not to force the infected pulp contents through the apical opening. Syringe out thoroughly with water. The rubber dam should now be adjusted, and from this on care should be taken to avoid infection. In my office all instruments are boiled in carbonate of soda solution.

The canals being accessible, take a smooth broach, preferably a Donaldson, which has been broken off above the bristles, and gradually and carefully work sodium peroxide into the contents of the canal. This can be done very often by placing the sodium peroxide directly into the cavity, but if at all difficult, moisten the broach with hydrogen dioxide and the sodium peroxide will adhere to it making it possible to carry it where required. Wash out the canals with hydrogen dioxide, which in case of a lower tooth, may be placed in and around the tooth with a dropper, and in an upper may be carried on the broach with a cotton swab. Dry with absorbent cotton and repeat until the canals assume a very smooth feeling and the hydrogen dioxide does not bubble when worked into the canals. Dry the canals and, if necessary, enlarge with hydrochloric or sulphuric acids, always using the same broach, which has been sterilized by the sodium peroxide and hydrogen dioxide, although

it is impossible to keep the canals thoroughly sterile as germs will get on the cotton from the hands, etc. Hot air is then forced into the canals until thoroughly dried.

If owing to acute inflammation at the apex, the canals cannot be dried because of oozing of serum, pus, etc., into the canal, do not fill but place in the cavity some non-irritating antiseptic, as cloves, carbolic acid, etc., and fill in a few days.

All other cases may now be filled at once, and what substance is best adapted to the purpose is the question which has been before the profession for years. No one substance seems to answer the purpose, but a mixture of different substances in the form of a paste, mixed at the time of operation, fulfills all the requirements. Among the pastes to which I have confined my attention are "Thymaform" and "Oxpara," substances of a very similar nature, obviously containing creasote, paraform, thymol and other ingredients. Creasote, a permanent indestructible antiseptic, losing its antiseptic properties very slowly, insoluble in water and powerful in a confined cavity. Paraform, a very diffusible, powerful germicide, soluble in water and having the property of permeating the tubules, hardening and solidifying any remains of the pulp. This acts at once, destroying any micro-organisms that have been left in the tooth or beyond the apex, causing any inflammatory condition to heal. Thymol, insoluble, very healing, being ten times as powerful a germicide as carbolic acid, and though very diffusible, lasting an indefinite period when confined in the tooth.

These are sufficient in themselves, and I have almost always found that any abscess which does not heal after this treatment has some cause, as necrosis of the bone, etc., and the only way to effect a permanent cure is to bur through the alveolar process, cut away the diseased bone or roughness at the end of the root and treat.

The ordinary method of treating root-canals in which a pledget of cotton saturated with a diffusible antiseptic is time after time sealed in the tooth with temporary stopping, sandarac, etc., to become speedily reinfected from the saliva is, to my mind, not only useless but harmful. The apical end of the root-canal is in a more inflamed condition for filling after this treatment than if it had been filled immediately.

Proceedings of Dental Societies**THE BRITISH DENTAL ASSOCIATION—CONGRESS IN
SOUTHPORT.—*Continued*****AFTERNOON SESSION.**

The afternoon session was held in the Town Hall, under the chairmanship of the President, Dr. Gaddes.

Mr. Chas. W. Glassington, M.R.C.S., L.D.S. (Edin.), read a paper on "Dental Defence," in the course of which he said that although a few members of the dental profession availed themselves a few years ago of the opportunities offered by the London and Counties Medical Protection Society and the Medical Defence Union, it was only comparatively recently that they had joined the first-named society in anything like large numbers. What really woke them up to the fact that any day they might be called upon to defend actions taken against them was the Apperly case. Then they rushed to the London and Counties Medical Protection Society in batches of fifty and a hundred to be enrolled as members. As he was not a member of the Medical Defence Union he could not say whether they had a corresponding increase of membership, but he thought not, because the Medical Defence Union admitted medical men only, namely, a medical surgeon could be enrolled if he were doubly qualified, whereas the London and Counties Defence Union accepted the L.D.S. qualification. When he was first elected on the Council of the latter, in succession to Mr. Chas. Tomes, he found the majority of that body did not quite understand the difference between the registered dentist and the qualified dental surgeon. Some had an idea that because a man was on the dental register he must be of necessity qualified. Since he had been on the Council only qualified men had been admitted as members. These now numbered about 470, or nearly one-seventh part of the society. The dental profession was, therefore, an important factor in that society, and he thought they could well understand that as his colleague, Mr. D. Pedley, and himself most zealously guarded the interests of all matters relating to the dental profession. A dental defence union, composed solely of members of their profession had been urged. That, he averred, would be a great mistake while they had a well-established society like the London and Counties Medical Protection Society, with a good reserve fund ready to look after their interests. A society such as that on taking up a case must see it through to the bitter end, and as they knew law was an expensive luxury. Besides in

the London and Counties Medical Protection Society they had a splendid organization constantly dealing with disputes of every description, and had been doing so for years. In this there was a double advantage, as medical men and dental surgeons were working side by side for one common object, and whilst at any time their medical brothers could call upon an expert dental surgeon to defend their interests, the dental surgeons were now able at any time to obtain the assistance of medical experts. It had been suggested that the British Dental Association should take up dental defence, but as far as he knew, and according to its rules the association could not legally spend one penny in defending an individual member however just his case might be. Moreover, the funds of the association were, in his opinion, required for defending the dental profession as a whole, and not individual members. Several dentists had been warned as to advertising, and on its being pointed out to them that they were liable to have their names erased from the Dentists' Register for infamous or disgraceful conduct in a professional respect they had ceased to do so. Medical men had also been warned against giving anesthetics for unregistered dentists, and rendering themselves liable to a charge of "covering" before the General Medical Council. The society had brought several cases of dental advertising before the General Medical Council, and was, he thought, the first to get a clear decision on the subject. In addition a number of cases had been practically settled by the tact and good judgment of the secretary of the London and Counties Medical Protection Society, Dr. Hugh Woods. Dealing with the question of the unregistered or quack practitioner, he said the advertising dentist was now too artful to use anything like the word "dentist." He was told he must not use any words on his business card such as dentist, dental surgeon, surgeon dentist, dentistry, dental, or dental practitioner, etc. He might, however, call himself an extractor or adapter of teeth said to be necessary for his business, without having gone through any hospital practice where at the very least he might gain some knowledge of the oral cavity and its proper treatment. That, however, was a matter which must be left to the British Dental Association and the legislators. Whether the new Medical Acts Amendment Bill would alter the present state of affairs must be left to the future to decide. Under the present law it did not matter much to the well-established dental surgeon whether they were registered or not. It would be decidedly rough on the young beginner, or the man who had gone there after four years of hospital training and obtained the L.D.S. qualification, to fight against a man without any such degree, and who could only put after his name the mystic initials, M.I.S.E.A.T., Limited. In closing, he said the funds of the British Dental Association were required to defend the dental profession as a whole, and an important means

towards that end was the prosecution of the dental quack. The London and Counties' Medical Protection Society could not undertake such work as that. He could, however, promise on behalf of his colleagues, that they could give very valuable assistance to the British Dental Association in that matter should it be required. His main idea in that paper had been to impress them with the knowledge that it would be a very long time before they could get a reserve fund large enough to conduct a big case. The two societies he had mentioned were both in a sound financial position. He advised them not to try and get up a defence union of their own unless they were prepared to raise a big subscription towards a sinking fund to enable them, if need be, to carry the case to the bottomless pit of the law. (Laughter and applause.)

THE DISCUSSION.

Mr. W. H. Coffin (Kew, Surrey) observed that at the conclusion of the Apperly case he caused it to secure as much publicity as possible among members, and as the result of replies received from them in the *Journal* there seemed to be a feeling that just about half the registered practitioners in the United Kingdom were not entitled to take advantage of the present regulations of the society Mr. Glassington had so eloquently pleaded for. It appeared to him that either they must make some concession in favor of the members and those of the profession qualified to become members of the association, or they must forego such benefits, or start an independent association.

Mr. Thomas Mansell (Birkenhead) said it seemed to him that the majority of the registered unqualified men were just as much in need of dental defence as were the qualified, probably even more so. The majority of them were not so well able to withstand any action or to take any line of prosecution. The question arose, what was to be done with the men? Mr. Glassington said they were not recognized by, or eligible for membership of, the London and Counties' Medical Protection Association.

Mr. E. Thorne thought Mr. Glassington would have liked all dentists to join one association. He felt that the London and Counties' Medical Protection Society would be strengthened by adopting Mr. Coffin's proposal, and that as the result there would not be so much of the purely medical side considered. He thought the present defence was hardly fair to the dentist. They had one-seventh of the members of the London and Counties Medical Protection Association dentists, and he urged that their representation on the committee should be increased. If the London and Counties Medical Protection Society in their annual report would give a little advice to their medical men as to the relationship between the medical men and dentists they would appreciate it very much.

Mr. J. A. Woods (Liverpool) thanked Mr. Glassington for his paper, and suggested that the London and Counties Society should incorporate in its title the word "Dental" as well as Medical, which would still further strengthen the society. He also suggested that they should admit all members of the B.D.A. who applied. (Applause.)

Mr. G. A. Lloyd (Liverpool) here suggested that the next paper on recent legal cases should be brought up and the two considered together.

The debate, however, was continued.

Mr. Grayston (Scarborough), referring to the action of the Medical Protection Society in bringing cases of advertising dentists before the General Medical Council, causing them to withdraw their advertisements, said it struck him very much to find that a society not originally instituted for the mothering or grandmothering of dentists should take upon itself a work which seemed to him primarily the duty of the British Dental Association. (Applause.)

Mr. Walter Coffin added that he had discussed the matter of starting a society for dental protection only with a prominent actuary, who told him it would be quite hopeless to run it on the calculations of the old-fashioned bodies, but if members would accept the assessment system, namely, a small annual subscription to start the society and keep it alive, and would be willing to send up a small assessment in case of cases coming up, that would probably work very much better than their custom of sending round a whip for special cases, such as the Apperly case.

Mr. R. D. Pedley urged that they were bound up with the medical profession, and always would be. He disliked to hear men constantly finding fault with medical men, and maintained that they gained an enormous advantage from the medical side. Members of the Council should urge their representatives to do more in the way of prosecution. They (the London and Counties Medical Protection Society) were trying to do a little bit, but it was not their business. Owing to the increase in unregistered practitioners, as pointed out by their President, they had to realize the fact that the status of their profession was being dragged in the dust. (Hear, hear.) They had also to realize the fact that the British public were absolutely unable as a mass to distinguish between those who look after the best interests of their profession and those who look after the best interests of their pockets. (Hear, hear.) He assured them that their interests were very carefully considered by the London and Counties Society.

The President had no doubt that if representations were made to Mr. Glassington or his colleague, Mr. Pedley, they would lay them before the London and Counties Medical Protection Society. Whether they did anything as a collective body of dentists.

independent of any other society, or took part in either of these societies already founded, was for their consideration.

Mr. Glassington then replied to the discussion.

At this stage it was again suggested that further consideration of this question should be given after the reading of the paper on recent legal cases. Conference agreed to this, and the remainder of the discussion was taken in private, but no definite decision was arrived at.

EXAMINATIONS IN DENTAL MECHANICS.

Mr. W. H. Gilmour, L.D.S., followed with a paper on "Examinations in Elementary Dental Mechanics." The object of the paper, he said, was to lead up to the resolutions which stood in his name, and he trusted these would be freely discussed and a definite vote given. After the passing of the preliminary examination which insured general knowledge, this was the first step in the dental curriculum, and the foundation of that manipulative skill so essential to the dentist. As a result of certain circulars issued to dental schools it was ascertained that most students showed more or less deficiency in vulcanite work, a deficiency in plate work, and in the higher branches of this work very little evidence of real training. Barely 10 per cent. professed any knowledge of tube work, none of any knowledge of continuous gum work, and only one here and there professed knowledge of bridge work. These returns were, indeed, startling, and formed a very hard pill to swallow. This result has been brought about by the want of a proper system of training in dental mechanics, and also to the fact that the responsibility of the training thrown on the preceptor by the examination in mechanical dentistry being held at a time when the pupils have left their preceptors and joined different dental schools. He advocated that apprenticeship should be dropped altogether, that pupils should be received by practitioners for three years' instruction, the premiums received from the pupils being looked upon as fees for such instruction. He also urged that a syllabus of the synopsis for pupils in mechanical dentistry should be prepared and issued by the British Dental Association for the guidance of each of its members. The work for the whole of the three years ought to be mapped out, and pupils should be allowed to attend certain classes. The next national and correlative reform must be to have a thorough examination in mechanical dentistry to be passed by the pupil before he has commenced the hospital portion of his curriculum. He closed by moving: That students be required to pass a practical examination in elementary dental mechanics before being admitted to the hospital portion of the curriculum; and that the examination be conducted by the qualifying bodies.

Mr. A. W. Cocker (Sowerby Bridge), in seconding, stated

that on the subject of mechanical training they were beating about the bush at the present time, and seemed no nearer than they were twenty years ago. He was not quite sure whether there were any preliminary scientific examinations in connection with any scientific school or with the College of Surgeons, but suggested that examinations under the Board of Education were quite sufficient. He thought they might very well proceed with a course another year. The want of it accounted in a large measure for the lack of art shown in mechanical work. He, however, deprecated anything being done which would increase the cost of obtaining the L.D.S. degree.

A CASE FOR CONSIDERATION.

Mr. W. Simms (Manchester) thought all would agree that Mr. Gilmour had made out a case for very careful consideration of the question of mechanical dentistry. Students as a rule were inefficient when they presented themselves to hospitals, but he thought the syllabus put forth by the Midland Council went a little too far, and did some little injustice to some students who felt they were being hit rather hardly, because it did not differentiate between students who had entered a hospital in former years and those who had entered within the strictly limited period with which the figures dealt. This subject was one of very great importance to them as a profession, because one reason why quacks flourished at the present time was because of the inefficiency of some of their qualified diplomats. (Hear, hear.) Private pupilage in its best aspect, when pupils were taught by the very best men in the most conscientious way, was, perhaps, the nearest approach to perfection in the training of mechanical dentistry, but mechanical dentistry was greater than any man practising to-day, and there were very few men in practical dentistry to-day whose practical dentistry was wide enough for the dental student. (Hear, hear.) Of the men who took pupils and held themselves out to teach them, only a small minority of them were qualified to teach mechanical dentistry. These were facts they ought to face before passing resolutions of so drastic a character as this. (Hear, hear.) The time was coming when they ought to put a period to the duration of private teaching. Those who were coming to them in future would be by education and intellect better qualified, and they would have to give up private pupilage to do justice to them, not leave them without adequate teaching, and turn them over to the hospital very imperfectly equipped. There were many men in smaller towns and villages with limited practice of mechanical dentistry, and who had to do their work as best they could, the means of their patients not allowing them to put forward expensive work. As the result they had pupils coming from practices where no metal work had ever been employed. How were

pupils to be properly trained in the art of dentistry under those circumstances? His own views went beyond these resolutions, and he felt that this was not dealing with the matter in a way approaching finality, or giving complete satisfaction. For that reason he was unable to vote for the resolutions.

Mr. S. A. T. Coxon (Wisbech) advocated the principle that the man who professes to teach pupils should pass a special examination himself to show his competence to teach.

LACK OF KNOWLEDGE.

Mr. W. B. Pearsall, as an examiner, complained of the lack of general knowledge on the part of candidates that passed through his hands in the Dublin examinations. They could not write English, spell, or answer questions in a lucid, terse, and intelligent way. Referring to the difficulty as to metal for use in making crowns and other processes, he observed that the College of Surgeons would not supply them with gold, and he did not think it reasonable at all to expect the student, who never broke hard German silver to turn out first rate work at a moment's notice. He would like to recommend in his college that it be suggested to the candidates that they bring their own gold. (Laughter.) A good many Englishmen came over to them, and, poor fellows, they very often failed. (Laughter, and a voice, "Naturally.") There must be something very wrong in things when there was no style in the work turned out. There was no design and no sense in the way in which the "band" was soldered—it was soldered as if it was designed for a man of war. (Laughter.) There was not one pupil in one hundred able to solder a band so that it enabled it to be elastic. He had had an opportunity of seeing things the other side the water, and our American cousins were able to do more with their men in a given time than we were. Whether it was that the men were more enthusiastic or possessed greater aptitude he did not know.

Mr. H. Lloyd Williams observed that in looking after the pupils of the Royal Dental Hospital, one of the difficulties they had to contend with was that the pupils came before passing a preliminary scientific examination, and consequently they had to remit a considerable amount of time for that. He advocated a recommendation that students who join as mechanical students shall have passed a preliminary scientific examination before they join. (Hear, hear.) He did not think that an elementary examination, and a more serious examination in dental mechanics was a very practicable way of approaching the matter, because in the case of a pupil coming up to hospital from private pupilage they would have him submitting himself to a more serious examination after he had been for nearly two years scarcely touching mechanical work at all.

Mr. Craig dwelt upon the advantages of private pupilage in learning method and style, compared with hospital manners, which were often lacking in these qualities for dealing with patients. Some students who went to Dublin could not speak or write English, that is, he presumed, as it was spoken across the Irish Channel. (Laughter.) But people who were well educated did not spell well, or put their words together well, and had a habit of dropping their h's. (Laughter.) One of the difficulties, he thought, was want of discipline, pupils doing what they liked unless private practitioners rose to their responsibilities. Without mechanical education a man would be a bungler as long as he lived.

Here a delegate suggested that the matter should be referred to the consideration of the Representative Board, suggesting that the resolutions were out of order, and that the College of Surgeons and the Dental Hospitals were the authorities to deal with the matter.

It was, however, pointed out that the resolutions could be passed as an expression of opinion of the association, and the debate was continued.

Mr. Geo. Thomson expressed the belief that many of the candidates who went over to Ireland for examinations had never completed a course of training at all.

Mr. Gilmour eventually suggested the withdrawal of the resolutions, pointing out that in the thinned conference an expression of opinion either one way or the other would be of very little value.

Mr. Cocker agreed to this course, but this was contested. However, on a vote being taken the resolutions were withdrawn by 13 votes to 9.

Mr. Coxon, speaking with considerable bitterness, said they had spent the whole afternoon on dental mechanics once again, and had come to no further resolution than they possessed before. This thing had been discussed for years—it was shelved again, he supposed, to come up once more in the dim futurity.

The President was sorry to feel it was policy to withdraw the resolutions, but really thought the meeting was so thin it was hardly fair to propose it. At the same time, he was of opinion that in order to enforce the proper training of people such an examination as that proposed would have to take place.

This concluded the business of the afternoon session.

(To be continued.)

ELGIN DENTAL ASSOCIATION.

The Elgin Dental Association met recently in Dr. Kennedy's office, when the following officers were elected :—President, F. E. Bennett; 1st Vice, W. J. Fear, Aylmer; Secy-Treas., C. C. Lumley.

ILLINOIS STATE DENTAL SOCIETY.

At the annual meeting of the Illinois State Dental Society held in Moline, Illinois, May 9th, 10th, 11th, the following officers were elected for the ensuing year: President, S. Finley Duncan, Joliet; Vice-President, L. W. Skidmore, Moline; Secretary, Elgin MaWhinney, 34 Washington St., Chicago; Treasurer Charles P. Pruyn, Chicago; Librarian, J. T. Cummins, Metropolis City; Programme Committee, J. P. Buckley, Chicago; Clinic Committee, W. F. Whalen, Peoria; Committee on Science and Literature, E. H. Allen, Freeport; Committee on Art and Invention, C. E. Jones, Chicago; Editor of Transactions, Edmund Noyes, Chicago; Members of Executive Council for three years: C. C. Corbett, Edwardsville; M. R. Harned, Rockford; A. D. Black, Chicago; Local Committee of Arrangements, T. P. Donelan, Springfield; E. F. Hazell, Springfield; E. A. Kartack, Springfield. The next meeting will be held in Springfield, May 8th, 9th, 10th, 11th, 1906.

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ONTARIO DENTAL SOCIETY.

The chairman, Dr. Wallace Secomb, Carlton St., Toronto, of the Programme Committee of the Ontario Dental Society is very anxious to present a programme for the next annual meeting which will, in every respect, cover a field of the greatest interest and good to the profession. In pursuance of this idea he desires to receive suggestions from anyone as to the most suitable subjects to be discussed. This is an opportunity for the profession to suggest what it desires. The committee is prepared to supply papers or clinics on any subject that may be suggested. From suggestions gotten in this way an excellent programme may be prepared.

A suggestion, which has already come to the writer, is to publish a paper previous to the annual meeting, and then the members will come prepared to discuss it.

THE EASTERN ONTARIO DENTAL ASSOCIATION.

The annual meeting of the Eastern Ontario Dental Association was held in Ottawa July 6th, 7th, 8th, 1905. The attendance was good, and the programme, both social and professional, was up to the usual high standard of the oldest Voluntary Dental Society in Canada. The sessions were well attended, the papers and clinics were well discussed. Ottawa is an ideal city in which to hold a meeting. Very accessible by rail and boat. The city and its surroundings are beautiful. The profession are ideal hosts. Nothing is too much trouble to entertain their guests.

DENTAL MEETINGS AT BUFFALO.

The National Dental Association, the National Examiners' Association, the National Faculties' Association, the Interstate Dental Fraternity, and the Delta Sigma Delta Fraternal Society held their annual meetings in Buffalo from July 23rd to 29th. All these organizations represented made a large gathering. The programme of the National Dental Association was a good one, and rather better managed than usual; but still there is room for improvement. The largest attendance of the general sessions was during the elections, which means much. The sections were poorly attended and hard to find. If placards were placed in conspicuous places about the hotel stating where sections were held and what programme was on at certain times, there might be some chance of knowing what is going on. The feature of the meeting was the clinics. They were good and well conducted. In a dental college is the only place to hold clinics. The Black Club inserted many beautiful gold fillings.

The National Examiners' Association stood in the limelight rather more than usual. This association is assuming what it deems to be its proper function. It claims the right to dictate the preliminary standard, the course of study, and the requirements for graduation in dentistry. It also claims the right to say what schools are reputable and what ones are not. In pursuance of these rights the secretary of the association wrote to the Deans of all the schools of the National Faculties' Association last winter and asked them if they would agree to certain preliminary standards and three terms (nine months) each before graduating. Twenty-one colleges agreed to this standard, and were placed on the lists as reputable, and by inference all others are not reputable. This action of the Examiners threw the Faculties' Association into a fury. For a day or so before the Faculties' Association met there was much talking about the rights of colleges and the powers of the Examiners. But though there was

much corridor talk the subject was never broached in the sessions, thus tacitly acknowledging the right of the Examiners to set the standards in dentistry. It remains for the remaining schools to comply with the standards set by the Examiners, or their graduates will not be allowed to come up for examination in any State where only graduates may be candidates for a license. At present these schools are not reputable.

A suggestion of Dr. O. A. Hunt, of Omaha, is to appoint a Board of Regents of fifteen, ten from the Faculties' Association, three from the Examiners' Association, one from the International Dental Federation, and one from the National Dental Association (appointments for life), to have complete and absolute control of the dental education of the United States. They will say what dental education shall be required, and how, when and where it shall be conducted.

A committee was formed to fully investigate this matter, and report the names of men suitable to act as Regents at the next meeting.

TWO IMPORTANT SUBJECTS

There are two important subjects to be discussed at the meeting of the Executive Council of the International Dental Federation, to be held in Hanover, Germany, August 7th, 1905.

1st. The consideration of the utility of publishing a pamphlet on the care of the teeth in a form which will make it accessible to the poorer classes.

2nd. A consideration of the possibility of manufacturing a good tooth brush at a price which will put it within the reach of the poorer classes.

One would think from reading these subjects that only the poorer classes needed help in the directions mentioned. Or to put it otherwise, the rich know all about the care of the teeth, and know a good tooth brush when they see it. One might also conclude from reading the articles that dentists, or someone else, had solved the whole problem of caring for the teeth and the proper kind of tooth brush to use. It is doubtful if seventy-five per cent. of dentists give any attention to the care of the teeth other than filling them, and not five per cent. of the remainder could agree on what is good instruction or what is a good tooth brush.

At the present time there is no instruction on the care of the teeth which is obtainable either for the rich or the poor. Not many dentists give their patients any instruction on caring for their teeth. Physicians who have in charge the care of the general health of their patients know nothing of oral hygiene. Until there is an awakening to the necessity for clean mouths it is not desirable to give out instruction to the poorer classes only. All classes need it and every dentist will hail with delight the publication of a pamphlet which will set forth the necessity for caring for the teeth,

and give specific instruction in this important subject. As soon as such a pamphlet is at hand it will be the duty of the State Boards and official Dental Councils who have the protection of the public in charge to distribute these among the school children.

TO INTENDING STUDENTS OF DENTISTRY.

Since the close of College a year ago changes have occurred in Dental education in America which have a marked effect on the dental student. The course in the United States has gone back from one of four years, of six months each, to one of three years, of nine months each. The matriculation standard has been raised from two years of high school to four years, to take effect 1906-7. In Canada the standards have remained about the same as last year, the Dominion Dental Council setting a standard of matriculation into any Canadian university or its equivalent, and attendance at a recognized Dental College for four years, of seven months each. Any student complying with these standards may sit for the Council's examination, which, if passed, will permit the candidate to practice anywhere in Canada. The Royal College of Dental Surgeons of Ontario has made some slight modifications in its requirements which are of immense advantage to its students. These may be found on the last page of the Proceedings of the Board, issued from the Secretary's office, 96 College St., Toronto. These modifications are, in brief, as follows: Students who have certificates of having successfully completed two years of high school or its equivalent, and who have not yet completed or passed the matriculation examination of any Canadian university, may enter College on the condition that they complete their matriculation before entering on their second year of College. This is of great advantage to the student who fails on his matriculation, because it permits him to go on with his course without losing a year to complete his matriculation. This rule has also obtained in the medical department of Toronto University for years.

The other modifications refer to the indenture system. A student may indenture with any licentiate in Canada who conducts his practise in accordance with the recognized code of ethics of the dental profession. The agreement with the preceptor may be terminated by mutual agreement, or by giving one month's notice in writing. By these modifications students are accepted from any part of Canada, and when they complete their course and pass the examination of the Dominion Dental Council the whole Dominion is open to them. Or if they do not wish to take the Dominion examination they will be given a license to practice in Ontario on graduating from the school. The Canadian Dental Colleges have all the facilities for teaching modern dentistry. When a student attends a Canadian school he knows that all the fees that he pays goes towards his education. They are not pro-

prietary institutions or joint stock companies which have to pay dividends to shareholders. They are part of the regular educational institutions of the country and cannot accumulate reserve funds or spend their moneys on anything except Dental education.

OFFER OF PRIZES BY THE NEW YORK INSTITUTE OF STOMATOLOGY.

With the desire of stimulating investigation in any field of activity directly relating to Dental or Oral Science, the New York Institute of Stomatology offers two prizes for the best papers submitted to it embodying the results of such original research.

The first prize for the best paper will be a gold medal and \$250. The second prize for the next best paper, a gold medal and \$100.

CONDITIONS.

- a. The papers offered for competition must be typewritten in English.
- b. Must contain not less than 1500 nor more than 3500 words.
- c. Must be signed by a motto or *nom de plume*.
- d. Must be accompanied by a sealed envelope marked with the same motto or nom de plume on the outside, containing the true name as well as the motto of the contestant within.
- e. Must be sent to the chairman of the Executive Committee, Dr. F. Milton Smith, 38 West 36th St., on or before March 1st, 1906.

JUDGES.

The following gentlemen have consented to act as judges:

Dr. C. N. Johnson, of Chicago, Editor of "Dental Review."

Dr. Eugene H. Smith, of Boston, Dean of Harvard University Dental School.

Dr. Wilbur F. Litch, of Philadelphia, Editor of "Dental Brief."
Under the following

RULES.

1. The papers will be sent to the judges without the sealed envelopes, containing the names of the contestants, which will be retained by the Executive Committee till the decision of the judges is made.

2. In deciding on the merits of papers offered in competition the judges will be requested to take into consideration the value and character of the research work the results of which are presented, more than the literary character of the essays, but to give the latter due credit.

3. The judges are especially authorized to decide which, if any, of the papers submitted to them are of sufficient merit to entitle

them to the prizes offered, or to withhold the award from all the papers if none are deemed worthy.

4. Authors of the prize papers will be invited to read their essays before a meeting of the Institute, as will the writers of other papers of especial merit, the Institute reserving the right to the first publication of all papers offered in competition.

Papers not used will be promptly returned to the writers. Those read before the Institute will be as fully discussed as possible, and when published will be adequately illustrated.

For further information address Dr. F. Milton Smith, 38 West 36th St., New York, N.Y.

Editorial Notes

Dr. G. M. Hermiston, formerly of Picton, Ont., is now practising in Detroit, Mich.

Dr. J. Branston and Mrs. Willmott have returned from a three months vacation in Europe.

The Board of Directors of the R. C. D. S. will meet August 30th, to complete the business of the Board before College opens, October 2nd, 1905.

DENTAL PRACTICE FOR SALE.

Dental Practice in British Columbia, old established, leaving city.

Apply to

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ASSISTANT WANTED.

Wanted by September, an assistant ; graduate preferred. State experience and salary expected. Address R. E. S., this office.

Publishers' Department**SANITOL COMES TO CANADA.**

We were much interested the other day to read in *The Toronto News*, issue of August 1st, a column and a half article announcing the fact that The Sanitol Chemical Laboratory Company of St. Louis were about to manufacture and market the Sanitol preparations in Canada. We take pleasure in announcing this fact to the dentists of the Dominion. We learn that business operations will be commenced by September 15th, Mr. W. Robert Smith, now Eastern representative of the Company in New York City and an assistant being in charge. The head of the Company will be at Toronto and from that point the campaign will be undertaken among the Canadian dentists for the introduction of the Sanitol preparations.

As it is well known, this company is the only Dentists' Co-operative Company in America. In the United States, the Company has achieved remarkable success having in a few years grown from a Company of three, to one composed of over 4,000 of the leading American dentists and from an output of fifty packages of Sanitol, to an output of one and a half million packages last year.

The majority of the dentists of the United States are behind the Sanitol preparations, believing, as they do, that in them the highest perfection yet reached in dental preparations has been attained. The confidence of the dentists and the public has always been retained by this Company and the fact that Sanitol preparations have been received with such favor by the profession as a body, in fact, in many cases have been endorsed publicly at Dental Conventions, the Canadian dentists should welcome their introduction into their home territory.

We all remember last year that the St. Louis World's Fair granted the Sanitol preparations the highest award ever given tooth products. We understand that the same plan so successfully carried out by the Company in the United States will be adopted in Canada, which is, that all dentists who believe, after test, that the Sanitol preparations are superior to others can, if they choose, become co-operatively interested in the Company's business, sharing in the profits derived from the Canadian market, which is directly brought about by the dentists' own recommendations of the preparations.

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Original Communications

THE ETIOLOGY OF TOOTH AND NAIL CORRUGATIONS.

By G. LENOX CURTIS, M.D., NEW YORK.

Read before Section of Stomatology of the American Medical Association, Portland, July, 1905.

Very early in my professional career, the peculiar markings I frequently noticed upon the teeth of some of my patients excited my curiosity, and I determined, if possible, to ascertain their cause and significance.

These markings, in some cases, were in the form of opaque spots, and in others they were latitudinal corrugations somewhat resembling the wrinkles upon a cow's horns. These signs were not always present in the teeth of all the members of the same family. In my researches, I often noticed similar markings upon the nails, the lines being both latitudinal and longitudinal. I could not, however, always find these markings in both the teeth and nails of the same individual at the same time.

I could find but little in medical books or periodicals relating in any way to the subject of tooth markings. References to, and descriptions of, the pits in the enamel which were supposed in some ways to be associated with the eruptive fevers occurring during the period of dentition, and Hutchinson's notches, included nearly everything that had any scientific value. Even now I find but little in addition to what was then given by Hutchinson.

This paucity of literature is undoubtedly due to the widely spread belief that these markings indicate nothing of importance to the practitioner. Such an opinion I regard as erroneous. They have at least an etiological place in medical literature, and for this reason alone are worthy of the attention of those who are interested in the general study of causes and effects. They also have other and more practical features of interest—features

of which no one engaged in the practice of medicine or dentistry should be ignorant.

It is true that these markings point only to abnormal and interrupted changes in nutrition that occurred perhaps a number of years in the past, when the enamel was soft and impressionable, and which, consequently, can have no direct connection with present conditions. But, even so, they serve the very important purpose of revealing and confirming the existence of past diseases, a knowledge of which is necessary to complete the history of any given cases. Moreover, they are particularly valuable if detected in their formative stage, because they indicate the origin and nature of the malnutrition which, by proper treatment, at this early period, can be corrected.

After studying and comparing the history of many cases, I became satisfied that the transverse lines on both the nails and teeth were caused by autointoxication, of which rheumatism is the result, and that they were more plainly developed, and perhaps alone present, in the more painful varieties of this affection, such as lumbago, sciatica, and arthritis, while the longitudinal lines pointed to intestinal indigestion, and were especially prominent in colitis, proctitis and hemorrhoids.

It then occurred to me that the corrugations upon the teeth of young children might have been caused by an attack of rheumatism from which the mother suffered during gestation.

Years afterward I found this hypothesis to be correct by the discovery, substantiated by ample evidence, that mothers who suffer from rheumatism during gestation, bear children whose teeth are corrugated, and that the teeth of children who have rheumatism during the period in which the enamel of the permanent teeth is developing, are also corrugated.

From these facts, I was forced to conclude that the responsible cause of the corrugations upon both the teeth and nails was autointoxication. Autointoxication, as is well understood, results from the intestinal fermentation. These interfere with normal functional activity, clog the emunctories, pollute the blood stream, and produce a substance, readily seen in the blood, called rheumatic fibrin.

That the autointoxication which occurs from the absorption of these bodies is the cause of rheumatism, is a conclusion I arrived at eleven years ago, while suffering from an attack of this affection so severe as to render me helpless for many weeks. This opinion was amply verified, afterwards, by clinical experience and research.

Formerly, the presence of fibrin in the blood was believed to be compatible with a healthy condition of the system; but now its existence is held by some to have a pathological significance only, and to afford the most reliable means of verifying the diagnosis of fibrinogenous disorders, as apoplexy, valvular disease

of the heart, tuberculosis, rheumatism, etc. According to this view, even the slight traces of fibrin, which some pathologists still maintain is an ingredient of healthy blood, are really due to the prodromal manifestations of disease. The nature of the disease is determined by the appearance, and its severity by the quantity of fibrin present.

It is interesting to know that Drs. Watkins and Salisbury claim that the leucocytes produce fibrin after the manner in which the spider spins its web. It is a question in my mind, however, whether these active organisms, instead of creating fibrin, as these authors maintain, are not in reality laboring to destroy it. This view is certainly more in harmony with the relation leucocytes are known to sustain toward many other pathological elements in the blood.

Opaque spots, when found in either the enamel or nails, are also an indication of autointoxication. As the finger nails of some patients are so carefully and sedulously manicured that all signs, which would otherwise appear, are obliterated, the toe nails, in doubtful cases, should be examined, for they may exhibit similar markings.

The lines on the nails will disappear if the system is freed, and kept free, from autointoxication, for the corrugations which appear at the matrix to-day, will disappear at the tip in the course of three or four months. When these markings are absent, it is fairly sure that your patient is not suffering with any serious form of either rheumatism or intestinal indigestion in any serious form.

The fineness or coarseness of the markings correspond with the degree of the severity of the attack, and the position of the latitudinal corrugations determines the date of the attack. If they are found near the end of the nail, it is safe to conclude that the attack occurred about four months previously; if they are found at the centre of the nail, about two months will cover the time that has passed since the attack appeared; if the lines are near the matrix, the disease has not existed longer than two or three weeks.

If the longitudinal lines are broken and irregular, they indicate an attack of intestinal disturbance of unusual severity, such as occurs in colitis, proctitis and gout. The position of these angular interruptions in the longitudinal lines denotes, as is the case with the corrugated lines, the period of time that has elapsed since the attack occurred. It is interesting to note how thin and how brittle the nails become in certain stages of rheumatic affections.

From the foregoing facts and illustrations, deduced from clinical experience, it is easy to understand how greatly familiarity with these physical signs will aid the practitioner in making a correct diagnosis of the condition of his patient.

MATERIALS BEST ADAPTED FOR PRESERVING CHILDREN'S ANTERIOR TEETH.

BY R. E. SPARKS, KINGSTON, ONT.

Read before the Eastern Ontario Dental Society.

In considering the above subject, properties must be taken into consideration which may not be so necessary in fillings for posterior teeth or for teeth of adults.

A material is necessary which may be quickly and easily inserted.

Few very young children will tolerate long operations. Nor is it easy to keep cavities for such patients dry for any great length of time.

In most cases a good non-conductor is indicated. Temporary anterior teeth are so small that when a cavity has formed sufficiently to require filling, the layer of dentine between the floor of the cavity and the pulp is so thin, any material having a high degree of conductivity would be contraindicated.

Adhesiveness is a very necessary property. In few cases of temporary teeth can we more than remove the decay from the cavities, and in a large percentage of cases, when this is done the cavities are not in a shape to retain a non-adhesive filling. Indeed, in many cases of decay in both temporary and permanent teeth, owing to the tender age of the patient, or nervous temperament, or very sensitive cavities, it is impossible to remove any of the decay; usually, by drying the cavity thoroughly, an adhesive filling may be inserted with a prospect of decay being arrested for a considerable time, or until the filling be dissolved or worn out. By this procedure we gain time. The patient is that much older, and will tolerate what he or she perhaps would not have endured a year before. Or, as frequently occurs, the cavity, which has been protected for a time, will be found to have largely lost its sensitiveness. Or, in the case of temporary teeth, they may be ready to give place to the permanent ones.

The material must be comparatively cheap. We all recognize the importance of preserving children's teeth, temporary and permanent; yet many could not have their children's teeth preserved if the expense were considerable.

Color is an important consideration. How frequently our sense of propriety is shocked to observe anterior teeth filled with a material quite different in color to that of the tooth, even though the teeth may be well preserved by it.

The question arises, What materials possess the above-men-

tioned qualities to the greatest degree? I believe oxyphosphate of zinc and white sheet gutta percha.

Each possesses advantages over the other.

Oxyphosphate, being harder, resists friction better than gutta percha, while the latter is not so readily dissolved by the fluids of the mouth. While gutta percha may be made quite adhesive by swabbing the cavity with chlora percha, or even chloroform, before inserting the filling, oxyphosphate will adhere to large, shallow cavities where gutta percha could not be made to stay. I have succeeded in saving teeth with this material which were too sensitive to admit of being excavated at all.

Where a cavity is sufficiently large to admit of a good body of filling, especially if located where it will not be subjected to much friction, it may be filled to advantage with gutta percha.

At what age the anterior teeth may be filled with gold to advantage will depend much upon the temperament of the child and the condition of the teeth. I seldom recommend gold until after the age of development. The teeth then do not decay so rapidly, and the patient will tolerate a more tedious and painful operation. If I were confined to any one material for filling children's anterior teeth, I should choose oxyphosphate of zinc, as possessing more of the desirable and less of the objectionable properties than any other material.

REPORT OF COMMITTEE ON SCHOOLS.

BY A. O. HUNT, OMAHA DENTAL COLLEGE.

Read before the National Association of Dental Faculties, Buffalo, July 28th, 1905.

The effort will be made to present in as plain, simple and concise form as possible the essentials of the "Count or Credit System" of qualifications of applicants and students entering upon and pursuing a course of study for the degree of Doctor of Dental Surgery, Dental Medicine, etc., that stand as a certificate to the individual as having completed such a course and being qualified to practice dentistry.

Without intending to discuss the exact position that dentistry occupies in its relation to other callings at this time, it is now desirable to agree upon a standard of education that may be made complete and exacting in securing the best results in accomplishing the object—the preparation of individuals for the practice of dentistry creditably in any part of the world.

The standard—by whom shall it be made? By what authority shall it be maintained and administered.

While we have every reason to be proud of the advancement of dentistry up to the present time, yet had the experience and knowledge relating to dental education been as broad in 1884, when the N. A. D. F. was organized, as it is at the present time, undoubtedly there would then have been an effort made to establish a standard. But I know of no one who is sufficiently well informed at this time to formulate one that would be correct.

In the past the point having the most weight was the question of time constituting a course. The use of this term was and is now indefinite; a year meaning any length of time that might be agreed upon by the colleges from one session to another, and this agreement was influenced by many things both worthy and unworthy.

Gradually limitations have been made by adopting months and weeks as the measure of time. Whatever advancement and change has come about has been without definite system, basis or a foundation upon which a superstructure could be built that would be stable and yet admit of such modification as future necessity might require.

A standard, then, to be a good one should rest upon a definite basis or have a definite purpose in view. If efforts heretofore have been faulty we now have the experience growing out of them. Let this be used in whatever way will be best, but a halt must be called and a beginning made on a system that will grow in the future without destroying the good things already attained or even disturbing them to an extent that will work unreasonable hardships.

There has already been adopted by this association the Count System of Credits, but we have not as yet grasped it in its fullness, nor can we do so until it is applied conservatively to our particular work and methods in harmony with the education of the dentist alone that finally produces a better dentist, a better scholar and better business man. It will be wise to keep in mind the sentiment expressed by Sir Michael Foster that the effort should be confined to the sole purpose of making good dentists.

With the Count System the time feature is easily adjusted by deciding how many hours of instruction in the aggregate may be required in each branch of the curriculum to cover the need of the dental student—these hours divided into semesters or periods representing a credit of (1) one point. This would give a measure of time or quantity of work done.

The next feature is one of quality, that must be decided after a careful and conservative view of the subject as to what shall be taught and how it shall be taught in each branch. This will then create a standard if properly administered, so that each credit will mean the same thing wherever obtained.

Yet, it will not enforce uniformity to the extent of destroying individuality. A system of equivalents or electives can be established that would prevent it, yet not in any way affect or change the system.

This part of the work will be perplexing, but it will be important that it shall be arranged justly and after the fullest consideration of the many things and conditions that necessarily influence it.

These conditions are not well known, as they have only been studied in a general way. The experiences of the past and the probabilities of the future must be collected and considered most carefully, so that no action will be taken that will not be permanent.

After the adoption of the system last year I received many letters and communications in regard to the administration of the system for entrance into the schools. These requirements should be rearranged and some subjects added that have been omitted; for instance, service in a dental office, etc. More credit should be allowed for some of the equivalent branches already listed, namely, advanced bookkeeping, business practice, stenography, telegraphy, etc.

While these subjects are not greatly important as mental forces, they are of more value than the credits given them as preparatory to the mechanical instruction of the dental course inasmuch as they induce accuracy of manipulation; and the continuous exercise of the fingers give a proficiency not to be despised. Manual training or shop work ought certainly to have larger credit than is accorded to it as preparatory work for dentists.

Members of the profession are thinking along these lines, and believe that more importance should be attached to that class of subjects that in any way help in a better understanding of mechanics as applied to dentistry.

In all dental societies there usually comes up a criticism of the colleges and their methods. Whether these be just or unjust there is a kernel of truth running through it all—chaotic though it is—that by patience and perseverance should be sifted out and practical use be made of it. This will not be easy to do and will require time, judgment and conservative action.

It has been thought best to present the questions and answers propounded as to the administration of the Count System in order that some of the difficulties may be recognized, as mentioned.

As to the answers. They have been given as well as the information at hand and the resources of the subject would allow, and in many respects will require revision as our experience grows.

1.—Do 24 counts constitute the standard for the matriculation in the dental colleges belonging to the N. A. D. F.?

Ans.—Yes.

2.—Are the first seven subjects given in your circular copy of the report of the Committee on the Count System, and aggregating 24 counts, obligatory or required subjects?

Ans.—The first, second and sixth are obligatory. For the seventh, German or Spanish may be substituted. For the third, fourth and fifth any of the elective subjects may be substituted, having the same number of counts. This will answer question number three.

3.—If these subjects are not obligatory, which of the entire list, if any, must be among those whose aggregate must be 24 counts?

4.—Can it be possible that 24 counts credited to the last 13 subjects which have little influence in the mental training and much less bearing upon the profession of dentistry or upon preparation for this profession can or must be accepted for matriculation?

Ans.—All these subjects have a bearing as to the value of the preliminary education.

5.—Is it intended that French, German or Spanish can be accepted as equivalent for any other subject than Latin alone?

Ans.—No.

6.—Does "part 1st" English mean the last year's work in the Grammar School? And does "part 2nd" mean the first year's work in the High School?

Ans.—Part 1st means first year in the High School course. Part 2nd means second year in the High School course.

7. What does "part 1st" of Physics mean?

Ans.—One year of Physics.

8. What is the meaning of 1st part of Latin?

Ans.—One year of Latin.

9.—What is the difference in the meaning between the terms "year" and "part" as used in connection with the list of elective studies?

Ans.—There is no difference.

10.—What is the bearing or meaning of the terms "electives" as used in the circular?

Ans.—The word "equivalents" might be used instead of "electives," meaning the same.

11.—Are the "counts" to be determined in the form of a certificate or diploma from the principal of a High School in which the studies forming the counts were pursued?

Ans.—Nearly all schools now are using the count system in some form, and certificates must be verified by the principals of the schools issuing them.

12.—If an applicant cannot present a certificate or a diploma

from a reputable school, can such applicant attend an entrance examination? (If left to the preference of individual applicants, a few individuals might, by their preferences, cover the whole list of subjects in the entire system.)

Ans.—In such cases the value of the examination must be determined by the official examiner.

13.—Does not the determination of "counts" by this system seem to require the organization of a system of frequent examinations in each state somewhat similar to the count system of the University of the State of New York.

Ans.—The Count System is practically the New York Count System.

14.—Does this count system contemplate the recognition of half counts or other fractional parts of the units or counts?

Ans.—Yes.

15.—Does the system contemplate or require the acceptance of less than 24 counts, and, if so, what is the minimum number of counts that a college may or must accept?

Ans.—Yes, conditionally.

16.—If less than 24 counts are to be accepted, what is the number of "conditions" on which an applicant may matriculate, and within what period after matriculation may these conditions be removed?

Ans.—Only such conditions could be allowed that would be likely to be removed at the close of the first year.

17.—If "conditions" are permitted, is it right that any one of these "conditions" be paid off or removed by examination within the Dental College or by any member of the Faculty? Or must such examination be under the direction of the State Superintendent or State Examiner as the present rules or by-laws of the National Association specify?

Ans.—The decision as to when these conditions shall be removed should be in the hands of the Official Examiner.

18.—If a student from a college in any state desires to matriculate in the sophomore class of the Dental College, should he be not required to show the credentials upon which he was admitted into the first year class?

Ans.—It would be better if this were done.

19.—What is the method of grading by the Count System?

Ans.—It is customary to base all markings for standing of the students upon the basis of 100.

It is also customary to require a certain percentage of this to pass a subject: Each school has its own methods, and this is one of the features where there might be uniformity without disturbing matters as they now are. After making extended enquiries among school principals and superintendents one of the following methods seems to be satisfactory.

The teacher's estimate is made up from class observation of

each student's work by recitations, quizzes, or other tests made at definite periods throughout the course, not less than twice during each semester. The aggregate of these estimates count two-thirds (2-3) on final record. These records, when once made, stand.

The teacher may employ additional methods as a test in individual cases to complete the estimate.

The written examination counts as one-third (1-3) of the final record. As an example, if the teacher's estimate is 80 and the written examination is 75 we would have the following:

$$80 \times 2 = 160 + 75 = 235 \div 3 = 78\frac{1}{3} \text{ or } 79.$$

Another method embodying the same principle, but doing away in part with the use of so many figures, is to use letters as representing a ratio. For instance:

A = 90 to 100. B = 80 to 90. C = 70 to 80. D = 60 to 70 = condition. E below 60 failure.

Under this latter scheme of using letters a method of stimulating study may be instituted by using in connection with teacher's estimate the letters H. and H. H., as representing Honors and High Honors, H.—90 to 95, H. H.—95 to 100. A student receiving H. H. in any branch at the close of the year to be excused from written examination. This is a stimulant to teachers as well as students, and tests are made oftener and advice given to make the student more thorough in the work.

The question of attendance is also an unsettled question. In cases of absence, on account of sickness or other unavoidable cause, the teacher may give in the estimate 3-4 credit for what is actually earned for same number of days absent. This is fair, because the student could not make a good record without in some way having made up the work gone over during the time absent.

The foregoing relates mostly to the entrance requirements. While there are difficulties presented in connection with this feature, they are small as compared with those that exist in adapting the system to the regular dental course.

There is little precedent to aid us, and it will require the broadest consideration by the best minds and those of the longest experience in educational matters, to deal with it equitably, and in such a manner as to receive the support and co-operation of the profession throughout the world, which can be secured to a certainty if they believe the motives are right and the efforts are to establish a standard that all can and will recognize as just, and which will accomplish the object sought for.

In endeavoring to fix a standard there are possibilities and impossibilities to be considered, and the closer the adherence is to possible things in the beginning the sooner and faster the impossible will disappear. Reach out for the Ideal all the time, but attempt only the possible and sometimes the probable; that

whatever is gained may be permanent. The danger is not that we shall proceed too slowly, but too hastily and without due consideration.

The initiative should come from the N. A. D. F. for obvious reasons. The personnel of its membership is less subject to change.

It is vitally interested in the best results in dental education. Its experience is an epitome of all that has occurred, whether good or bad, in this cause.

It is a body composed of self-sacrificing, able and honest men. Its deliberations are active, earnest and lead to the best results obtainable under existing circumstances.

After a long and careful consideration of this subject the following is offered as a suggestion, believing it is the proper way to secure a standard and have it properly administered, so that it will command the support of all interested:

To select from this body ten persons, whose tenure of office shall be ten years (or what is better still, for life), to be known as Dental Regents, with absolute authority to create and administer a standard for entering upon dental courses and requirements for graduation.

That all schools of this association shall be bound by their action. That all dental schools may register with the Regents. The Regents shall report at least sixty days before the annual meeting, to each college under their jurisdiction, the work of the preceding year, which shall be presented to the N. A. D. F. at the following annual meeting.

Another suggestion is that, in addition, the N. A. D. F. be requested to appoint three persons as members of this Board of Regents, under the conditions named above; also the I. D. F. be requested to appoint two persons, one a resident of America and one from a foreign country, as members of such a board.

By following some such a plan as this all those organizations that have anything to do directly with dental education will be represented, and all will be interested in the results.

THE MASTICATING SURFACES OF ARTIFICIAL TEETH.

BY R. BREWSTER, CHICAGO, ILL.

Read before the Institute of Dental Pedagogics.

Mr. President and Members of the Institute of Dental Pedagogics,—I esteem the privilege afforded me by your committee of bringing before you my views on mastication in relation to the articulation of artificial sets of teeth.

In supplying full upper and lower dentures, one of our first considerations is that they shall render efficient service in the mastication of food. For this purpose we desire to use teeth with pronounced cusps, but are met with the difficulty that pronounced cusps tend to displacement of the denture. Recognizing this difficulty, it is by no means uncommon practice to remove these prominences until the occluding surfaces of the teeth are little better than mill-stone surfaces.

My own individual necessity in having to wear artificial substitutes led me to investigate the subject of cusp formation, and in connection therewith the movements of the lower jaw in mastication.

The conclusions reached, I may say, are at variance with the generally accepted views upon these subjects.

It appears that under the stimulus of food, the muscles in mastication act without a conscious effort. This automatic action—as it may be termed—is sometimes brought forcibly home to us, when a piece of bone, which has escaped the vigilance of the tongue or mucous surface, is bitten upon with force.

The primary action of the temporal and masseter muscles, assisted by the internal pterygoids, is apparently to raise the lower jaw vertically to absolute occlusion, and it is *very* doubtful whether, during mastication, this *direct motion* is ever modified *without a conscious effort*.

When the full force of these muscles has been exerted upon food opposing the closure of the jaws, they give place to those whose function is to laterally displace the lower jaw, carrying with it the food from under the upper teeth, that it may be manipulated by the tongue, bathed in saliva, and brought again to its position upon the crowns of the lower teeth for the next direct closure of the jaws.

The cusp formation of the posterior teeth, presenting, as they do, a series of modified inclined planes—especially adapted for the separation of fibrous or other hard material—strongly supports the view that, although by a conscious effort during direct biting the lower jaw may be moved laterally, such a movement is made at the expense of pressure, the efficient work of comminuting food, whether of a fibrous or hard, granular character, being accomplished only by the direct upward movement of the lower jaw. The mastication of soft foods, that offer no resistance to the complete closure of the jaws, is left to the tongue,

buccinators and those muscles controlling the lateral movement of the jaw.

Assuming, then, the correctness of this view, the more pronounced the cusps—given a perfect articulation—the better the masticatory apparatus. Whilst this is true as regards natural teeth, it is not so with artificial substitutes. Pronounced cusps on artificial teeth, especially for edentulous mouths, have not, as before stated, proved successful.

This leads us, then, to the conclusion that the disintegration of food by incision, rather than by crushing or grinding, is the more correct method for man. This implies hard foods—not necessarily entirely fibrous—but foods that in mastication develop the muscles that raise the lower jaw. The ability to chew hard material is admittedly advantageous to the individual. A careful examination of a large number of cases would probably disclose the fact that persons whose normal bite registered much above the average would be found to have stronger teeth and a lessened, if not entire absence, of pyorrhea tendencies. These persons would also be found to select by preference food that required hard chewing rather than made-up dishes and semi-liquid foods.

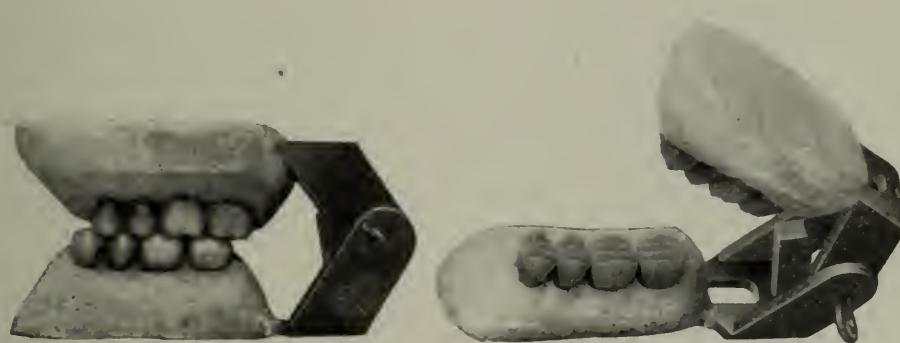


FIG. 1.

A discussion of these very interesting points is, however, going somewhat beyond the scope of this paper, which has for its object a closer examination of the characters of the artificial substitutes we are called upon to supply to patients, and the suggestion of a remedy for some of our present disabilities in this respect.

Designers of artificial teeth have carried the natural cusp formation (suitable only for single crowns) into their full sets without apparently any good reason, beyond a desire to make them *look* natural. But natural conditions do not exist; the artificial denture, resting merely upon a smooth mucous surface, needs different treatment. The *most efficient surface possible* for comminuting food becomes the more imperatively necessary in view of the unnatural conditions present when wearing artificial dentures.

Having reached these conclusions, your essayist commenced a series of experiments, with a view of adding more power, more efficiency, to an artificial denture, and the cusp formation now presented for your consideration is the one (taken from a number of designs) believed best

suited for the purpose. It will be observed that the crests of the cusps present a level surface—that the superficial area of the occluding surface is divided into a series of inclined planes (Fig. 1), thus increasing efficiency very many times,—that when brought to occlusion the opposing teeth are locked, that is say, the incising surfaces are effective from the time they enter each other.

This cusp formation presents no difficulties in the matter of articulating sets of teeth, but on the contrary renders this portion of the work more simple.

To ascertain the relative efficiency of this form of cusp formation, as compared with natural teeth, various materials were tested, and it was found that the actual disintegrating effect was greatly in favor of this form of tooth. Upon some of the materials used in the tests a pressure of fifty pounds was equivalent to one hundred and fifty pounds in the human mouth upon the same material.

Of all the materials used in these trials sheet gutta percha has been found to give the best results. It is not so readily affected by moisture, and may be used at various degrees of hardness, which is an important feature.

When these teeth reach your hands for trial, I would suggest your ascertaining by gnatho-dynamometer tests the power those persons can exert who are to bite into your testing materials.

In conclusion, gentlemen, I bring this subject before the Institute of Dental Pedagogics because this society represents the teachers of the country, and because I desire to interest them in a phase of the subject of mastication, and of the usefulness of artificial teeth which I believe to be new, and both scientific and practical.

Proceedings of Dental Societies

THE BRITISH DENTAL ASSOCIATION—CONGRESS IN SOUTHPOR_T.—*Concluded.*

THE EVENING BANQUET.

In the evening the members of the association dined together in the Prince of Wales Hotel, under the chairmanship of the President, Dr. Gaddes, supported by Councillor Trounson, the Mayor; Mr. J. E. Jarratt, the Town Clerk; Dr. Weaver, Medical Officer for Southport; the following Canadian delegates, Dr. Dubeau, Dr. Lentier, Dr. Eugene Lemieux, Dr. N. L. Lemieux, Dr. Alix. Lemieux, Dr. Hillier, U.S.A.; Dr. Jenkins, Dresden; Professor Moore, Liverpool; Dr. Lloyd Snape, Director of Education for Lancashire; Dr. Wheeler, Medical Officer of Health for Birkdale; Dr. Walker, President of the Southport Medical Society; Dr. Baildon, Dr. White, Rock Ferry; Mr. W. B. Paterson, Chairman of the Representative Board of the Association; Dr. Dalamore, Hon. Sec. of the Association; several past presidents, including Mr. W. E. E. Harding, Shrewsbury; Mr. G. Brunton, Leeds; Mr. W. Harrison, Brighton; Mr. Leon Matheson, the President-elect; Dr. Williamson, of Aberdeen, last year's President; Dr. H. Barron, Southport; Dr. Littler, Southport; Dr. R. Reinhardt Anderson, Mr. G. G. Campion, Manchester; and Mr. G. O. Whittaker, Manchester.

The President, in submitting the toast, "The King and the Royal Family," said that he learned that His Majesty had met with a slight accident at Newmarket. They hoped sincerely that the accident was of a trivial nature, and that the King would be fit for his many and arduous duties in a brief time. (Applause.)

The toast was drunk with appropriate musical honors.

ORGANIZATION OF DENTISTS.

Professor Moore, Liverpool University, submitted the toast, "The British Dental Association and the North Midland Branch." It was not, he said, the toast of an organization which arose yesterday. It was not the toast of an association of mere mushroom growth, but an association which was established a quarter of a century ago, and which had since then labored to promote the best interests of the dental profession, and to maintain the honor of that profession, and its position before the world. (Applause.) It had done this by several

means. One of these, and not the least, was by promoting such meetings as the present, whereby they could meet one another and get to know the objects at which they were aiming. It was only in this way that they could protect the best interests of their own profession, and in protecting that they were protecting not merely the thing which belonged to themselves, but the best interests of the British public. (Hear, Hear.) It sought to protest against advertisement, which was the bane of dental science and of the profession in this country. One of the most important objects of such a society was such a one as that. It was one which they had always maintained in the past, and one for which their existence was necessary in the future, because although such a society protected their own interests it protected greater interests than theirs—those of the public at large. (Applause.) Whatever laws might be made in the future, it was necessary that the association should be maintained, because it was only by such organizations that the public could be protected. He learned that their society numbered over 1,500 members. (Applause.) They represented by far the better portion of the dental profession, and of those who took an interest in the profession, and who would loyally support it in its work. In addition to the toast of the British Dental Association he had to include the North Midland Branch, which he understood was one of the most active branches of the association. Its membership increased from year to year; it was now three hundred, and that during the past three years had increased by one-third. It had done a great deal of useful work in the interests of the dental profession, particularly in reference to the benevolent fund and in the interests of dental education. He would couple with the toast the names of Mr. W. B. Paterson, for the B.D.A., and Mr. J. Renshaw, for the N.M.B. He added that if they were to maintain the confidence of the public, if they were to do the best for the dental profession, they must not only assure the public that they were working in their own interests, that they were protecting the public from the operations of those not properly trained in dentistry, but that they were providing for the education of the dentists in the future. They could only appeal to the people of this country with success by convincing them that they were working in the interests of the public weal, and he felt that to do that one of the objects which the association should cherish most cordially, and which it should do its best to promote, was that of dental education. They must assure the British public that there would be a sufficiency of well qualified dentists to attend to all classes of the community. Was that done at the present time? He did not say that dentists already in the profession should lower their fees. He thought they should do the best possible class of work, and that they should cater for the public who appealed to them, but at the same time he felt there was a large class of the public that ought to be

attended to. It was, he felt, in the interests of the nation that the whole of the people should be attended to by the dental profession, that there should be some means by which a dental profession could reach everyone. The results of modern science showed that that must be done. He did not know by what means this could be done, whether they would establish a branch similar to the public health department of the medical profession, but whatever way it might be done it was one of the matters the dental profession should hold before the country. It would increase the usefulness of the association, which looked not merely to its own advantage in the matter, but to the well-being of the nation. (Applause.)

The toast having been honored,

CARE OF SCHOOL CHILDREN'S TEETH.

Mr. W. B. Paterson responded for the B.D.A., and in doing so said he would borrow two points from the President's address. The first related to the care of the teeth of school children and the work the association had done in connection therewith. The second was the legal status of the dentist in the State. With regard to both, he thought he might venture to prophesy—although they were always told it was rash to prophesy—that members of the association, when they came to look back upon the Southport meeting, would, in addition to remembering it for the interest shown in its papers and demonstrations on the science and art of dentistry, remember it for the prominence the two points he had mentioned occupied. With regard to the first, the association had done much good work in the collection of statistics. But for these statistics he felt quite sure that the evidence they were able to give the Physical Deterioration Committee of the Privy Council would have been of little avail in proving what it did prove, that there was physical degeneration in the teeth of the people of these islands. (Applause.) The other day, at the dinner of the Metropolitan Branch, he was told by no less an authority than the President of the Royal College of Physicians, Sir William Church, that it was the only evidence produced by anybody connected with the medical profession to show that there was physical deterioration of the British race. At the general meeting in the morning his curiosity was aroused by an allusion by the Mayor—not definitely, but indicating in some measure—to the opinion the Medical Officer of Health (Dr. Weaver) held in relation to the teeth of children and work to be done by Southport in connection possibly with its schools. He was curious to know what the views of Dr. Weaver might be, and he was sure that he was but voicing the opinion of them all when he said that they would welcome Dr. Weaver to the meeting on Monday, when the subject of the teeth of school children would be discussed. (Dr. Weaver: "I shall be there.")

The question of the legal status of the dentist in the State had been touched upon by Professor Moore, who said that they must prove to the Government that they were working in the interests of the public weal. Undoubtedly they must. He supposed 99 men out of every 100, if they were asked to define the meaning of "doctor" or "dentist" would answer in words to this effect: "Persons properly trained in the practice of their profession, and possessed of a certificate of fitness which is declaratory of that." He would not even omit lawyers from the 99. He had heard eminent judges express surprise that there was no law compelling doctors and dentists to be so certificated. But they knew, unfortunately—and the President had emphasized it only too well in his address—that this was not so; and he considered that the position was not only a public scandal, but a public danger. (Applause.) They should certainly strive their utmost to bring to the notice of any government—whether this or any other that was to be, whenever that was—(laughter)—the desirability of some such arrangements as was suggested in the address—State examination, State certification of dentists and of doctors. Professor Moore had spoken of the dental profession reaching all classes of the community. In this connection Mr. Paterson alluded to the establishment of provident dental associations, which at present were only in their infancy. They had been successfully started in a few parts of the kingdom, but they might be started in many others. It was by such means that they could hope to reach the poorer members of the community and bring good dentistry within the reach of all.

Mr. I. Renshaw then replied for the North Midland Branch, at the inauguration of which, twenty-five years ago, he was present, and every council meeting and every general meeting of which during that period he had attended. The members of the branch were delighted that the association was holding its annual meeting within their area once again. He thought they had shown from time to time that they knew how to make the association welcome. He proceeded to say that the election of delegates from the association to the

INTERNATIONAL DENTAL ASSOCIATION

was a seed sown that day which would grow up into a magnificent tree, under the branches of which the members of their profession would meet from time to time to discuss the best methods for the advancement of their profession. Had it not been for the originators of the Midland Branch it was doubtful whether they would have had that meeting of the British Dental Association in Southport that day. It was due to their dear and departed friend, Sydney Wormald, of Stockport, who, in 1875, recognizing that there was no dental association in the country, and that there was no means beyond the Odontological Society

of Great Britain for the dissemination of professional ideas in the provinces, issued a circular for a meeting in Manchester to consider how best to advance the interests of the profession. That was the commencement of the reform movement, when it was deemed important that they should have registration and compulsory education. In consequence of that meeting a Dental Reform Committee was started, which was taken up with great vigor and enthusiasm by members not only in the provinces but in the metropolis. Three years after its inception they got a Dental Act passed, which gave them practically all they were asking for. ("No.") At the time they were satisfied. Some gentlemen say "No." It now remained for them to amend the situation. The efforts of the Dental Reform Committee having, by the passing of the Act, ceased, it was deemed very unfortunate that it should be broken up. Therefore, the committee merged itself into the British Dental Association. Simultaneously with the formation of the British Dental Association the Midland Counties Dental Association was formed, and within six months a meeting of the latter body was called to consider the desirability of becoming a branch of the British Dental Association. Ever since that time the Midland Branch had shown vigor and enthusiasm in all that appertained to dental reform and advancement. (Applause.)

A COMPREHENSIVE TOAST.

The President then proposed the toast of "Our Confreres Throughout the World." In doing so he said that toast constituted a departure in the history of the British Dental Association. It was a happy moment when the Representative Board decided to invite the Canadian Dental Association and the National American Dental Association, and other associations, to send delegates to that meeting. It was the first time such an invitation had been issued. The notice was exceedingly brief considering the distances the representatives had to travel, but they had a most hearty response. The National Dental Association of America selected six of the representatives to come, but they were unable to come. Their brothers in Canada, however, had sent six of their representatives, and their applause was sufficient warranty to indicate that the response met with their hearty welcome. (Applause.) They had sent a small invitation, but they had received a greater invitation. They asked them to send delegates to this meeting; they replied by sending six delegates, and the President, Dr. Dubeau, was armed with an invitation to the British Dental Association to meet in the Dominion of Canada, either next year or the year 1908. They had sown little; they were reaping much—(applause)—and it seemed to him very fitting that behind him they had first the flag of the Mother Country, the Union Jack,

on the one hand, and the flag of Canada on the other; while beside it was the flag of their cousins of America, and also of France, represented by Dr. Platchique. He hoped their colleagues would take these emblems with them as an index of their hearty welcome and of the small sowing they sowed, and the large harvest he hoped they would reap in common with them. He gave them the toast of "Our Confreres Throughout the World." As a responder they had hoped to have had Professor Miller, but, unfortunately, he would not arrive in Liverpool till the early hours of the following morning. He had hoped to respond to that toast, and one of the quotations he was prepared to make was: "Fellowship is life, and lack of fellowship is death, and the deeds that ye do upon earth it is for fellowship's sake that ye do them." (Applause.) Such were the noble sentiments that Dr. Miller would have spoken to them that evening. In his absence, Dr. Willmott, their Canadian friend, would take his place. He would, however, first ask Dr. Dubeau to respond.

THE CANADIAN PRESIDENT.

Dr. Dubeau, who had a cordial reception, said he could not have expected to have had a better reception. The Canadian delegates were very much honored and proud to have been with them that evening. In coming to Southport he came to a town that was not unknown, for a friend of his was an intimate friend of Councillor Trounson, and he had heard of his eminent talents as an administrator of Southport. (Applause.) His colleagues were at first in doubt as to the possibility of accepting the invitation, the few thousand miles being a great obstacle. After considering the great benefits that would accrue from the coming into contact of two great associations, they had decided to come. They were all glad to work with them in the interests of their profession. Personally, he was a strong believer in dental functions. In 1900 he attended the International Conference in Paris, and last year he was *Président* at St. Louis Congress. His presence here was an earnest of his interest, for he felt that time and money spent on such conference were well spent, and even the most skillful would learn something from the experiences of colleagues. He had listened with great interest to the address of their President, and he was surprised to learn that dentistry was practised by unregistered men. In Canada, and more especially in Quebec, they had so strengthened the Dental Act, that they could not believe such a thing existed anywhere else. (Applause.) In Canada they accepted no man unless he were a registered man, and they did not allow their graduates to advertise more than their name, qualifications and address, such advertisement not to exceed one inch of space in a newspaper. Their Act had been attacked again and again, but the attacks had failed, and this year's contest, he thought.

would be the last blow at it. He hoped that in the future English dentists would get such a law for themselves. Dr. Willmott, who was with them, was at the head of the Ontario Dental College, one of the best existing; a pioneer, and most beloved of Canadian dentists. Dr. Willmott was an ex-president of their association, and his predecessor in that office. Their association was composed of all the dentists in Canada, and numbered a little over 1,200. Out of the six delegates who were present that evening five were French-Canadians. (Applause.) No one could doubt the loyalty of the French-Canadians to the British Empire. In 1760, 60,000 Frenchmen were left in what they considered a land of exile. Now, they had grown to two millions, but when the health of "His Majesty" were proposed, it was always drunk with the utmost enthusiasm. Indeed, nothing could exceed their devotion for the throne, and the respect entertained for the United Kingdom generally. (Applause.) He thanked them all for the kind reception to the Canadian delegation.

EARLIEST DENTAL LEGISLATION.

Dr. Willmott also responding, said that amongst dentists nowadays there was perfect reciprocity of knowledge, what one dentist knew being free to every other dentist. He had been present at the meetings of the American Dental Association in 1861, and had never missed a year since, for he usually attended several gatherings of the profession. He eulogized Dr. Miller, who, he said, was not only known in the United States, but everywhere where dentistry was practised. Dr. Dubeau represented the Quebec branch, whilst he represented the Ontario branch of the association. Referring more particularly to the history of dentistry in Canada, he said that in the Province of Ontario they claimed to have put into operation the first effective dental law of any nation. They had beaten Dr. Dubeau's branch in Quebec by a month, having put the law into operation on the 4th of April, 1868. The Ontario Dental Association dated back to 1866. They had at that time 180 practising dentists, 150 of whom met together to organize their society. The immediate result of their organization was an agitation for legislative enactment, which should protect a member from unqualified practitioners. From that time their Act had been occasionally amended, until now, with the usual conceit of colonists, they claimed to have the best dental law in the world. (Applause.) He had been interested in the discussions of the conference on education and legislation. He hoped to utilize his present visit to have a look into most of the dental schools, for he wished to study the methods of dental education in this country. He hoped they would carry back something that would develop the educational interest of the dental profession. With regard to the discussion of the mechanical edu-

cation of dentists he said they had practically dropped the word "mechanical" in Canada. They had what was termed prosthetic dentistry, though they did not follow the American method, which was to teach everything in a college course and practise everything in the intervals. In Canada the dental education was given, both in the office of the preceptor and college, and their students commenced work in college, taking their holidays in the office of the preceptor, and thus becoming familiar with office practice.

"THE VISITORS."

Mr. G. G. Campion (Manchester) proposed the toast of "The Visitors," coupling with it the name of the Mayor and Dr. Walker, and warmly acknowledging the hospitality accorded them by the Mayor and corporation.

THE MAYOR'S INTEREST.

The Mayor, in reply, thanked the President and the company generally for the opportunity of attending their annual dinner. Incidentally he mentioned that Dr. Dubeau had a letter of introduction to him from a mutual friend in Montreal. That was sufficient to create immediate friendship between Dr. Dubeau and him. He had never heard a speech which gave him greater pleasure than that in which Dr. Dubeau cleared from his mind and possibly theirs, a doubt, possibly placed there by wire-pulling politicians, when he declared that nothing we could do would decrease the loyalty of the French-Canadians to our King. (Hear, hear.) Let it never be our lot to do anything to weaken that loyalty. (Applause.) In all probability the future would see a direct relationship between municipal authorities in this country and the Dental Association. (Hear, hear.) He referred that morning to the fact of their Medical Officer of Health having laid before the local education authority the question of the attention of dental gentlemen to their school children. (Hear, hear.) His ideas were not yet formulated, but he was sure they would derive an unlooked-for benefit by the attendance of Dr. Weaver at their conference on Monday. (Applause.) Southport was a progressive town, and on more than one occasion had been the first municipal authority to take up questions of the public welfare. He hoped it would show the lead in this respect. (Applause.)

Dr. Walker, in responding on behalf of the Southport Medical Society and himself, said he realized that the aim of the Dental Association was to raise the profession to which they belonged, not only by their scientific labors and the careful and accurate study of disease and its remedies, but by its feeling of brotherhood and mutual support—(applause)—so that the public would not take advantage of those mutual jealousies which ever were apt to occur with men looking to their own rather than to

collective interests. (Hear, hear.) He was very pleased to realize that not only the medical profession, but the dental also, realized the duty and privilege of inter-community, of union which is strength, of cordial sympathy with their fellows, of jealous regard for the reputation of others, and, above all, a veneration for the entire profession of which they were units, and, combined with this, a determined resistance to all who would degrade them or lower the standard of professional morality. (Applause.) They never could meet on occasions like this without realizing that the more this good feeling was cultivated and extended, the more they would fulfil the intention of these great associations, the more they would improve their social status, extend their sphere of influence and usefulness, and secure the confidence and esteem of the public. (Applause.) In the year 1881, when the International Medical Congress met in London, he had the pleasure of attending the reception given by the British Dental Association. He little thought on that occasion that he would have the great pleasure of addressing their president and them. He wished their conference every success. (Applause.)

The toast of "The Benevolent Fund," proposed by Mr. Walter Harrison (Hove, Brighton), and responded to by Mr. Cornelius Robbins (hon. secretary to that fund), and that of "The President," proposed by Mr. E. J. Ladmore, were also honored.

SCHOOL DENTISTRY.

Mr. Norman G. Bennett, M.A., M.B.B.C., L.R.C.P., M.R.C.S., L.D.S. (Lond.), read a paper on "School Dentistry." He said the subject was one that had frequently been referred to in recent years at meetings of the British Dental Associations, by scientific societies, and the President in his eloquent address as well as other speakers, had referred to it. Only a little while ago the School Dentist Society scarcely existed. Even the profession itself needed to be convinced that it was desirable or necessary. But they had changed all that, and his present purpose was to state the broad facts, so far as the present state of knowledge enabled him to do, of the relationship between dental diseases and general diseases. The first to show the prevalence of disease in children were the members of the committee of the B.D.A., and their views had been analyzed in several papers already published. The fact that laymen had begun to realize the necessity for the care of the teeth marked a distinct epoch in dental hygiene. He knew that there were those who said the association only talked and never did anything, but there were optimists who thought that a great deal could be accomplished. The great link in their chain of evidence was that dental disease and other diseases were in some way connected. At the present time he believed it was impossible to adduce this in statistical

form, but considerable evidence was accumulating. It was obviously difficult in the nature of things to prove conclusively that definite disease was the direct result of dental disease. Those who watched current medical and dental literature would notice from time to time the reference to individual cases, which taken together and all accumulated, would form strong proof of the danger of dental diseases if it had not been so much neglected in the past. The view generally held was that decay of the teeth caused insufficient mastication, followed by indigestion, and proceeding to more serious complications. This view was doubtless correct, although it was an imperfect statement of the state of affairs. The observations of dentists had shown that only a portion of the large number of microbes which obtained access to the stomach were destroyed by the gastric juice. Let them consider the result of constantly swallowing septic matter into the stomach where the normal condition had been weakened by constant inattention. It was obvious that the opportunities of the bacteria would be very great, especially between meals. A well-known doctor had summarized the symptoms as an ashen grey look, the result of long continued septic absorption, with the local symptoms of clamminess of the mouth, distaste for food, coated tongue, and bad taste in the mouth. Possibly he took an extreme view, but it was a reasonable one. At the same time it must be pointed out that gastric symptoms were not necessarily associated with a septic mouth.

Surgeons had now recognized the necessity of having the mouth rendered as septical as possible before performing operations on other parts of the body, especially the abdomen. The point he wished to establish was that before they could hope to obtain dental treatment of children they had got to show that dental disease was extremely prevalent. It was surely not difficult for laymen to understand that a child of three or four years of age with most of its molars rendered *hors de combat* could not properly complete its physical development. More important still, the Local Government Board had recently empowered Boards of Guardians to provide food for the children and recover the value from the parents, but what was the use of food without teeth to masticate it, and what was the advantage of exerting muscles without providing them with sufficient pabulum? If they were able, as they thought, to treat dental disease in childhood, were they also prepared with a reasonable scheme of prevention and cure? The School Dentists' Society was the logical outcome of the efforts of the School Committee of the British Dental Association, and the aims and objects of both were identical. Specifically they were the introduction of the teaching of dental hygiene in schools, the instruction of the teachers, and the introduction of dental inspection and treatment in schools. The work was not entirely pioneer work now. Much of it had already been done, and if further justification

for detail treatment be needed beyond the arguments he had introduced, it might be found in the fact that these useful officers in schools once established were never abolished, and medical officers of schools were almost always found ready to speak in favor of the dentists' most valuable work. Much might be done under the new Education Act by pressing the local authorities to act. The child is the father of the man, and by educating the children of to-day how to care for their health was to take the most effective means of improving the race. We were a long way behind in our estimation of the beauty of physical perfection; we were a long way from recognizing that a stigma of disgrace attached to those parents who allowed their children to grow up stunted, deformed, and diseased. These ills were not necessary to the human race, and dental disease was not the least of them. (Applause.)

The President said the paper was an instructive one from a professional as well as from a public point of view.

REPORTS ON SCHOOL CHILDREN.

Mr. B. J. Rodway submitted reports of investigations of Manchester school children, which showed the advantage of having qualified dentists to examine the children's teeth.

Mr. A. Drake, of the Liverpool Odontological Society, also presented a report on the same lines.

BAD TEETH AND CANCER.

Dr. J. J. Weaver, Medical Officer of Health for Southport, was called upon to speak. He said that from what the Mayor had said on one or two occasions they would expect him to say something more important than he really had to say. He was hoping to learn something from that association as to what course to adopt with regard to the care of the teeth of children. It was true that he had recommended the Education Committee of Southport to attend to the matter, and he was hoping sooner or later to get some definite scheme in order. He quite agreed with all that had been said, and he would even go further, for he considered that a person with a chronic septic mouth was liable to any disease. (Hear, hear.) It was his duty to look after the sewers of the town. He thought every person with an offensive mouth was in as much danger as from an offensive sewer. There was a possibility of malignant disease being in some way directly traceable to defective teeth. They knew that there had been an increase of malignant disease at the same time as an increase of dental disease, and he was prepared to say that dental disease predisposed to cancer. Cancer was liable to attack the tissues, and it was injurious to the tissues when they were constantly bathed in septic matter. In men, though not so much in women, there was a great increase in malignant dis-

ease, especially in the elementary region. If defective teeth predisposed us to cancer, and if cancer was due to a germ, they had a suitable condition set up in the mouth to encourage the growth of germs. He would like to feel satisfied that cancer was not connected with the teeth, but from what they knew they could very easily see the importance of the hygiene of the mouth. As the medical officer of the Education Committee he had to look after the schools, and if he came across a large number of children with defective teeth he could not ask a dental friend to go and examine them. Some system would have to be inaugurated for dealing with them. The question of expense was a serious matter. Whether the Education Committee, who scarcely paid him anything, would pay dentists' fees he could not say. He understood that there was a system by which the working class paid for the actual cost of dental treatment. (The President: "It has been inaugurated.") He hoped they would enjoy their visit to Southport, and leave it with pleasant recollections of their visit. (Applause.)

Prof. Miller, M.D. (Berlin), said he believed every disease might be brought about through the human mouth. Not only was the mouth the point of infection, but it was the place of lodgement for the microbes which might develop in the mouth and began an attack. There was very little doubt that disease could be brought about simply through microbes being in the mouth. He had come to the conclusion, along with others, that not only the individual, but the nation, depended for strength on the condition of the teeth. The question of expense was sometimes mentioned, but he would remind them that they bought pianos for the children, and surely teeth, which meant good health, were of more value than pianos. He hoped the dentists of England would be able to accomplish the object they had in view. (Applause.)

Mr. Pedley (London) said they had to realize two things—the children must first be treated, and afterwards educated to a sense of the danger of dental disease and the proper care of the teeth.

Mr. Gilmore (Liverpool) spoke in favor of hard foods, and caused some laughter by stating that it might do the people good if they had more "bones."

Mr. Martin Henry (Folkestone) spoke against the use of too much white bread.

Mr. G. Cunningham (Cambridge) said this was a rejuvenation of an old subject, and he was glad to see the young men taking it up so heartily and he trusted their example would be followed in other parts of the country.

Mr. Bennett was invited to reply to the discussion, but he remarked that the various speakers had shown such a grasp of the subject that he would not dilate upon it further. He had no doubt the matter would be taken up by the district

authorities, who would be able to do more good than a central body.

Professor Miller added that the dentists must not regard the use of white bread with too much disfavor. In Germany, where black bread was almost in universal use, there was the same great prevalence of dental disease.

PORCELAIN PROSTHESIS.

Great interest was taken in the proceedings of Section B, for which the lecture theatre of the Science and Art Schools was utilized. Dr. Williamson, the ex-president, occupied the chair. The hall was crowded to excess, the principal attraction being undoubtedly a paper by Dr. Jenkins on "Porcelain Prosthesis." Many of those who had evidently come to hear it had to leave for want of suitable accommodation. Dr. Jenkins' paper was largely of a technical character. He showed that prosthetic porcelain was designed to unite still more perfectly artificial teeth to the base to which they had already been soldered. Such teeth could by its means be completed by filling up any crevice, be built out to any desired extent where the form was deficient, and enormously strengthened where an especial strain came. Strength, beauty, cleanliness, ease of manipulation, were among its many conspicuous advantages. Eminent advocates of so-called high-fusing porcelain told them that it was a great advantage to be able to build up a porcelain and fuse it with the minimum of shrinkage, thus preserving a sharp outline. No doubt this was often successfully done, but where was the porcelain expert who could always by this method build up in perfect form and color even a single tooth? By the method he had the honor to present, however, not only the exceptionally gifted man, but any ordinarily skillful dentist could accomplish any work in porcelain prosthesis, especially in crown and bridge work, with absolute perfection of form and color, and of indestructible integrity. For he would use his prosthetic porcelain as he had used vulcanite to pad out and to support and strengthen the teeth and facings, which he had been able to select from the great variety which manufacturers of porcelain teeth had placed at his disposal. He did not need to advocate before that distinguished association the advantages of porcelain prosthesis. Their own culture and that of their clientele caused them to shrink from the barbaric display of gold, and their deep sense of duty often prevented them from essaying a doubtful case of bridge work where either aesthetic feelings must be sacrificed or doubtful utility be obtained. Like them he had gone through all the phases of combined gold and porcelain restoration, and, like them, he had lamented its imperfections.

Dr. Jenkins passed round for inspection a number of specimens, on which he offered explanations in reply to questions.

AN IRISHMAN'S RISE.

Mr. W. Booth Pearsall followed with a paper on "Ideal Inlays." The title of the paper was somewhat misleading, being devoted solely to questions of dental politics, and the need for improving the education methods of dentists. He said that ever since Partridge had started on his unprofessional career he felt that there were inherent powers in the law they had not used. He declared their executive was hide-bound to police court work which did not make law or precedent. The result of that policy, though they did not fail in success with it, was to provide public sympathy for notorious offenders and frauds, as persecuted individuals, whose bread was being taken out of their mouths. That state of affairs had never pleased him, and so having failed to enlist the help of Jupiter himself to push their wagon out of the mire, he had set to work and raised the subscription with which to take joint counsel's opinion on the relation of the Dentists' Act with the Companies' Act. By this rebellious act of endeavoring to bring about a better state of things he had to overcome many obstacles. He was, however, able to raise enough money from members of the British Dental Association, who had the sense to see the importance of thoroughly examining the state of affairs. They as an association had sat down for several years under a counsel's opinion given on inadequate instructions. The opinion, no doubt, was correct so far as it went, but then it was directed to one point of view, whereas they needed the whole position thoroughly examined. Counsel had met several times, with the result that an opinion favorable to his contentions was placed before them in Dublin. No time was lost in testing it. They did not succeed in their first case owing to circumstances which need not be detailed. It was a great discouragement to them all, but their King's Counsel never wavered in his purpose, which he had since successfully carried out in the cases which had ended in the judgments pronounced by Chief Baron Palles and Sir Andrew Porter. In these proceedings they had won judgments of great importance, so much so as to have made a record in company law. It rested with them one and all to put things in such a train that the public would be protected against fraud and imposture of a most cruel type. That the public could be protected was shown by the last judgment, in which the Master of the Rolls decided that the Attorney-General for Ireland—at whose relation the suit was brought—was entitled to relief from the audacious fraud in the interests of the public. It had been a great satisfaction to him that his dream had come true, for he was treated as a dreamer and a talker of foolishness by men who ought to have known better. In this effort to right a grievous wrong good work had been done, for an independent guarantee fund had enabled the matter to be tested as it never

was before. That action was all the more creditable, as the subscriptions involved some self-denial on the part of many of their members in supplying funds that ought to have been at their disposal from headquarters. He had a sanguine hope that their members generally would now unite one and all in such work. A few years of resolute campaign, and they would win, for truth and right must prevail if they did their duty to the public and themselves. For example, they could compel the Board of Trade to stay its monstrous and illegal actions by having questions asked in the House of Commons as to the way public interests were safeguarded. It was as logically reasonable that the Government Department should register murder companies as make the registrations they had done for years outside the letter and spirit of the laws they administered. He maintained they required a defence fund actively and wisely administered, and whether they joined existing defence societies or made one of their own the sooner they combined and used that weapon the better. The next method of inlay took into consideration that most important subject—dental education.

No one could assert that their method of education was satisfactory to the profession as a whole. It would be necessary for the association to give attention to this great subject in many of its details. As an association they should bring their knowledge, their experience, and their desire for progress to bear on the dental schools, the licensing bodies, the examination courts, and on the General Medical Council. The fact that they recognized they had some voice and interest in these matters was shown by the great trouble taken with and the long consideration given to the putting together of the syllabus for pupils in mechanical dentistry, which was now being considered by a committee on behalf of the Representative Board. That movement had his hearty good-will and sympathy, for it had long been a wonder to him that they had so long acquiesced in a curriculum for dental education for the most part drawn up by medical men, who as a body were singularly ignorant of their work and science. They had waited long enough to realize the defects of an education that was not as effective in producing good practitioners as it ought to be, and it was time they as an association actively, wisely, and patiently set to work and changed it for the better.

The Chairman observed that was scarcely the paper which should have been read to a practical meeting. He was somewhat sadly reminded of the phrase, "Can the Ethiopian change his skin, or the leopard his spots?" Dr. Pearsall should have intimated exactly the character of his paper.

Dr. Pearsall said his paper was written with a view to progress. They would sympathize with him in the fact that some years ago they took great trouble to have sectional papers lodged with the committee and abstracts placed in their hands

in view of possible discussion. He was never called upon to hand in his paper. The only way to get progress was to demonstrate how the law could be broken. (Laughter.)

Dr. Pearsall, who was continuing his remarks, was ruled out of order. He was thanked for his paper.

Dr. Platschick, of Paris, read a paper on "A New Method of Making Retaining Points in Porcelain Inlays." Dr. Jenkins characterized it as very ingenious and efficacious beyond all question, but had elaborateness which to him was necessary.

Dr. Platschick remarked, after a vote of thanks had been cordially passed to him, that he would have great pleasure in telling French dentists how the British Dental Association received foreign visitors.

Dr. Jenkins, who is an American, in acknowledging a similar compliment, said, "This is really for one whose people lived for so many centuries in this happy land a true home coming."

In Section A yesterday, presided over by the President (Dr. Gaddes), Mr. A. A. Lantier, surgeon dentist, of Quebec, first read a paper on a case of tumors of the alveolar borders of the upper maxillary bone.

Mr. Harvey Hilliard, L.R.C.P., M.R.C.S., read a paper on "Meteorological Conditions as Affecting Nitrous Oxide Anesthesia." He showed that the induction and duration of anesthesia were affected by atmospheric conditions. Allowances had to be made on the physical type, habits, and temperament of patients. Obese people did not take gas in the ordinary manner, and the demonstration must be conducted with special regard to their physical condition. Heavy smokers and those who took large quantities of alcohol also behaved very differently to abstainers from these things. The recovery from the effects of anesthetics on fine days was very much better than on those when the atmospheric pressure was low. In cases of phthisis deep cyanosis should be avoided, as it might cause weak vessels to give way and serious hemorrhage to follow, and unusually long and difficult operations ought not to be attempted when the barometer was low. When, on the other hand, the barometer was high, air, or oxygen, should be always administered to eliminate all the asphyxia symptoms.

Replying to discussion, Mr. Hilliard discouraged the use of ethyl chloride, when the barometer was high, on account of the after affects of faintness and sickness.

THE TREATMENT OF DECAYING TEETH.

Professor Miller, of Berlin, read an interesting paper on "The Use of Nitrate of Silver in the Therapeutic and Prophylactic Treatment of Decay of the Teeth." In the course of this he dwelt on the expensive character of dental operations, some of which required greater skill and length of time than operations of amputation, or those on which a patient's life depended.

He estimated that in Germany only 3 per cent. of the population were able to enjoy the services of the dental practitioner, and the percentage in this country would not be much higher, while in other civilized countries it would be less. Consequently all attempts to introduce methods which would eliminate liability to decay and reduce the expense of treating any decay that occurred was exceedingly laudable, and one of the highest aims of the dental profession should be to make the services of the dental practitioner accessible to the millions of poorer people to whom they were now totally unattainable. Of the many attempts made, he mentioned plastic fillings as having been a great blessing to tooth-suffering humanity, and the efforts which had been made to render unnecessary the extirpation of a dead pulp by inoculating it with something that rendered it innocuous. Millions of teeth which must otherwise have been sacrificed to the forceps, or allowed to decay, had been saved in this way. He also referred to the electro-sterilization of root canals, and in preventive dentistry dealt with the mechanical and the chemical. In the former he deprecated too extensive use of pumice stone for rubbing the teeth, as this rubbed away the enamel cuticle. Dealing with the use of nitrate of silver, he had no hope for it as a preventive prophylactic treatment, but great hope for its use to slight cavities of decay.

In the course of the discussion member after member spoke of the usefulness of nitrate of silver, especially in preserving children's teeth. One mentioned that it had been used for years in stopping toothache among the men employed at a Staffordshire iron works. A danger signal against the swallowing of any of the preparation was, however, held out by the fact that an accident of this kind had once carried away a patient's vocal cords.

. DOES ENAMEL CONTAIN ORGANIC MATTER?

In a later paper, Mr. D. E. Caush, L.D.S.I., Brighton, propounded the theory that enamel contained organic matter—uncalcified tissue—in the shape of tubes running through from the outer surface to the dentine, the tubes of which it joined.

The theory was, however, strongly combatted by several speakers.

FREE MEALS AND SCHOOL CHILDREN'S TEETH.

On the resumption of the unfinished portion of the business of the annual meeting left over from Saturday, Mr. W. B. Paterson presiding,

Mr. George Cunningham, of Cambridge, brought forward the resolution which urged the necessity of providing free meals for school children and adequate attention to their teeth. He referred to the two papers given that morning dealing with the

subject, and the new statistics given to advocate this cause. He asked permission to alter the resolution. This, as originally drafted, urged the adoption of legislative measures for the provision of free meals for the children. Since that resolution was sent in certain legislative measures had been taken in that direction. They would admit that those were not quite so full and complete as they would like; yet, at the same time, the principle had been adopted, and there was no doubt it would lead to its extension. This question of feeding of the children had no relation to dentistry as such, but after all they were citizens of the State, and similar resolutions had been passed by various bodies like their own that had recently met. He then moved the amended resolution as follows: That in view of the urgent necessity of arresting the physical deterioration of the people, and in view also of the futility of attempting to educate under-fed school children, the association approves the adoption of legislative measures for the provision of free meals to school children, and urges the provision for adequate treatment of their teeth.

Mr. G. G. Campion (Manchester) seconded, and the resolution was adopted without further discussion.

FIRST ANNUAL CLINIC OF THE FRATERNAL DENTAL
SOCIETY OF ST. LOUIS, NOVEMBER 20TH,
21ST, 1905, AT THE BARNES DENTAL
COLLEGE.

Special features of the meetings will be a series of lectures on: "Cavity Preparation," "Methods and Principles of Packing Gold," and "Methods and Principles of Finishing Fillings," by Drs. E. K. Wedelstaedt, of St. Paul; A. C. Searl, Owatonna, Minnesota; J. F. Wallace, Canton, Missouri, and numerous other members of the Black and Wedelstaedt Clubs, and other prominent men in operative and prosthetic dentistry. Complete programme will be announced later.

All ethical practitioners are invited to be present and clinic. Please send your name and subject of clinic to the Secretary. Exhibit space to be obtained by application to the Secretary. A cordial invitation is extended to the profession to be present and make this meeting, limited in scope, but limitless in importance, the best ever held in this section.

BURTON LEE THORPE, *President,*
S. H. VOYLES, *Secretary,*
3201 Washington Ave.

Dominion Dental Journal

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VOL. XVII.

TORONTO, SEPTEMBER, 1905.

No. 9.

THE ANNOUNCEMENT OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

The annual announcement of the Royal College of Dental Surgeons of Ontario was issued in July. Owing to several causes it appeared somewhat later this year than usual. The announcement should be out as early as possible, because as it is sent all over the Dominion with the hope that students may be entered from any part of Canada, there is left very little time for a student to complete arrangements before College opens. No one knows better than the writer what excuses printers can make for delaying work. So that in cases where there is doubt about the date of issue of the announcement it might be well to send out a circular letter to those quarters where students may come from, setting forth the main features of the College and the advantages of holding a Canadian degree. Every education department, high school principal, university and boys' school or seminary should receive circulars stating the requirements for matriculation in Dentistry, and the nature of the course. In this way attention would be called to dentistry before the young men leave school or college.

Intending students will know where the Canadian schools are. The Dental Schools of the United States make special mention of what Canadian standards of matriculation will be accepted in their schools. They do so much advertising in Canada that their standards will be forced upon us unless we enter the field with information for students. As a boy the writer had a half dozen calendars of dental schools in the United States, and only found out by accident that there was a school in Canada. Canadian standards in dentistry must be kept before the people. One way to do this, and perhaps the best way, is to conduct courses of instruction for practitioners. The College in Toronto is splendidly equipped for conducting practitioner's courses. These might be conducted with very little cost and every attendant would be another friend of the institution. This is one of the best ways of building up a dental educational centre.

It must not be thought that these matters are only of local interest. They are national in character. Canada can no longer afford to raise and give free preliminary education to young men to go to a foreign country to spend Canadian money in getting a professional education, which they pay for, that may be gotten as well at home. It is a fact, and has been for years, that there are more Canadians obtaining their dental education in the United States than there are in Canada. And unfortunately their preliminary education is not up to proper standards, many of them not knowing the difference of requirements between the two countries before they leave home, thus preventing their return, which is a great loss to our country.

DUTIES OF STATE BOARDS AND PROVINCIAL COUNCILS.

Both in the United States and Canada State Boards and Provincial Councils often do not realize the full responsibility of their positions. It is often said that these Boards are not responsible for the care of the health of the public, and it is not within their province to undertake the education of the public or the care of the poor. Such matters belong, they say, to the state or the voluntary societies as a charity, as in England. Let us look at this question a moment. In Great Britain and all her colonies which are not self-governing, and, in fact, some which are, any person may practice law, medicine or dentistry without hindrance, so long as he does not call himself a lawyer, a physician or a dentist. In other words, these are voluntary societies, which have copyrighted certain names, and so long as these names are not used by those who do not belong to the societies there is no offence. Even though these societies exist the people claim the right to choose whom they please to treat them. This is not so in Canada or the United States. The Legislatures say who may treat the

people. It is a kind of paternalism. The people are not supposed to know in America what is the best treatment for them when they are sick, so they place the whole matter in the hands of their Legislatures, and these again delegate it to others who have specially prepared themselves to do such work. Then it is clear that Dental Boards are acting for the Legislature, and in such a capacity have the care of the people in their hands. If the people had not placed themselves in their care there would be no dental law as it now exists.

Now, if this be the correct view to take of the responsibility of the Provincial and State Boards, it would seem that they are officers of the Government, though, as in Ontario, they are elected by the profession. In Ontario the profession is acting for the Legislature, with the full responsibility of caring for the public dentally. Very often it would seem as if the profession were conducting its affairs more as a joint stock company, or as a trust, than as a body of men intrusted with a responsibility to the people. The administrative actions of the profession and their representatives—the Board—are all concerning the profession, and only indirectly the public. If the profession and the Board would feel that their first responsibility was to the public and not to the profession, there would be less difference of opinion between the Legislature and the Board. And, moreover, it would act as a first lesson in ethics to the student. How can a student be taught to appreciate the attitude a professional man should bear to his patient if the profession he is preparing to enter places its interests before those of the public? There is a very great responsibility placed in the hands of our Board. They are, through their electors, really a Board of Regents to provide the public the best dental treatment possible. The people have given up their liberty in this respect, because they think we can choose better than they. They have intrusted themselves to our care. Are we living up to that trust, or are we taking advantage of it if we allow a man to practice who is not qualified? Or if we allow our members to take advantage of the public by false statements of their skill or the fees they will charge. If we allow our members to be false to the public we are not fit to have charge of that part of public government. If this matter were placed before the Legislature in this light there would be no difficulty in making our members be at least honest to the public, and that is all that we should have any control over.

STUDYING CANADA'S PRACTICE.

Captain A. F. A. Howe, of Salisbury, Eng., Dental Surgeon of the Southern Command of the British Army, arrived in Montreal the other day by S.S. *Canada*, with Dr. E. Dubeau, of Montreal, President of the Canadian Dental Association.

Captain Howe served in the South African war as combatant

officer, and shortly after his return was appointed to the high position he now occupies. He is the leading British authority on the subject of army dentistry, and is the author of several publications upon it.

Dr. Dubeau was in Europe this summer representing the Canadian Dental Association at the dental meetings in England and Germany, and Captain Howe, who met him in London, obtained permission from the War Office to come with him to Canada to study our methods of dealing with this problem.

Captain Howe is just back from Ottawa, where he has been with Drs. Dubeau and E. Lemieux to see the Militia Department on that subject. They met Colonels Pinault and Fiset, who had a long interview with them and proved very satisfactory.

Captain Howe was entertained at dinner at the Place Viger Hotel by the dentists of Montreal. Amongst those present were: Messrs. F. A. Stevenson, Nolin, Simpson, Gendreau, Matthews, Dubeau, McKenna, Lemieux, Eng.: Franchise and others. Dr. Howe sailed back to England by the S.S. *Virginian*.

APPOINTMENTS.

To fill the vacancies in the Faculty of the School of Dentistry of the Royal College of Dental Surgeons, made vacant by resignations, the following appointments were made at a recent meeting of the Board of Directors:

Operative Dentistry and Dental Pathology—A. E. Webster, M.D., D.D.S., L.D.S.

Medicine and Surgery—A. Primrose, M.B., M.R.C.S. (Eng.). Associates—R. J. Reade, M.A., M.D., D.D.S., L.D.S.; E. Ralph Hooper, M.B.

Materia Medica and Therapeutics—Harold Clark, D.D.S., L.D.S.

Practical Chemistry and Metallurgy—W. T. Stewart, M.D., C.M., B.A.

Editorial Notes

THE Temple Patterson Dental Supply House conducted a clinic during the Exhibition, which attracted a large number of dentists who were visiting the city at that time.

CAPTAIN A. F. A. HOWE, of Salisbury, England, Dental Surgeon to the Southern Command of the British Army, was in Toronto, accompanied by Dr. Dubeau, of Montreal, during the National Exhibition. Dr. Howe visited Canada to study the condition of the army dental service in the Canadian Militia. Though his visit was short in Toronto, he visited the clinics of the Temple Patterson Company, the Exhibition, and met many professional and military friends. He was entertained at the Lambton Golf and Country Club.

Correspondence

SUGGESTIONS TO THE ONTARIO DENTAL SOCIETY.

To the Editor of DOMINION DENTAL JOURNAL :

Dear Sir,—In compliance with the wishes of the Programme Committee, as expressed in your August issue, I would respectfully mention "Public Instruction in Dentistry" as a subject to be included in the programme of the Ontario Dental Society's next annual meeting. Under this head two papers may be prepared, one dealing with individual instruction of patients by the dentist, and the other with general instruction of the public by means of printed matter.

In the first paper suggested a complete order of procedure for the patient who is to practice oral hygiene and prophylaxis should be stated in detail; the method of teaching each detail should be given, and the reasons for the various steps, also. This paper should include few general remarks and no preaching. We agree that oral hygiene should be practiced. There is, however, wide diversity of opinion as to what is good practice, and therefore we want particulars so as to establish a satisfactory mode of procedure to be taught and demonstrated by the dentist and adopted by the patient.

Some of the questions to be considered in such a paper are these:

- (a) What should a patient know about teeth and their environment in order to care for them, and how is he to learn this?
- (b) What form of tooth-brush should be used, and why?

Is one brush enough, or should several of different forms be used by each person? If a certain form of brush, or set of brushes, be suitable for one adult person, are they necessarily suitable for all persons?

- (c) What is to be used as a lotion in brushing?
- (d) Shall such lotion for daily use contain drugs?
- (e) Discuss the use of drugs or medicinal preparations—powders, soaps, pastes, dentifrices, and mouth-washes. What is likely to result from their daily use?
- (f) Is there any drug or medicine that will destroy bacteria in the mouth without injuring the oral tissues? Discuss this phase of the subject.
- (g) Supposing water to be the proper lotion for daily use, what quantity of it, in what form of vessel is necessary to attain conveniently the end in view?
- (h) Describe the different grasps of a tooth-brush by the fingers to secure the most rapid and efficient movements in brushing all the surfaces of all the teeth without doing injury.
- (i) Supposing the proper form of brush and manner of using it to be known, how shall this knowledge be imparted to the patient?
- (j) What shall a dentist teach concerning use or avoidance of any or all dentifrices, mouth-washes, powders, tablets, etc., sold in drug stores "for the teeth"?
- (k) Shall the use of toothpicks be recommended? If so, what kind, and why?
- (l) Bearing in mind what is known of the etiology of caries, the points liable to attack, and the physiology of the teeth and surrounding tissue, what is to be said of Dr. D. D. Smith's "orangewood stick" practice, and his radical grinding of natural enamel surface with pumice? Shall engine polishing be used? What kind?
- (m) Knowing the skill and operative experience necessary in order to use floss silk or any other string between teeth without doing injury, shall we advise patients to use such things for themselves?
- (n) At what times daily should teeth be brushed, picked, rinsed? What is necessary to enable a patient to examine his own teeth?
- (o) How often should the mouth of a patient be examined by a dentist? If the time between examinations is variable, then what are the indications for long or short periods?

Apparently we should be clear upon these questions, at least, before proceeding to teach. And if we are not to teach oral hygiene and prophylaxis, who is? It is surely our duty to get wise as to efficient, safe and practicable methods, so that we may teach them. If a paper, or several papers, be prepared according to the foregoing indications and published before the meeting,

members will be prepared to discuss the questions in such a way as to bring us nearer to a solution of them. Having solved them, it will then be easy to outline a mode of procedure to be demonstrated and otherwise taught for the benefit of all people who are willing to learn. The chaos of methods now prevailing is unsatisfactory and inconsistent with the pretence that dentists are prepared to teach and advise proper measures for the prevention of dental and oral disease.

In the other paper referred to it is suggested that someone be asked to propose a scheme for the preparation, printing and distribution of a small book for the instruction of school-children and all who can read, in regard to the nature, value and care of the teeth, and to facts concerning dentistry and dentists of which no one who can read need be ignorant. It may be supposed, for the purpose of discussion, that we are prepared to state what proper *care* of the teeth shall be. However, the expense of such a work and the authority to introduce it into the public schools must be provided for.

The first difficulty might be removed by a contribution from the Ontario Dental Society and the Royal College of Dental Surgeons, supplemented, as we may hope, by a grant from the provincial funds devoted to education. The second difficulty may be overcome by a proper representation of the case to the Minister of Education.

When we are agreed as to what are proper, useful and necessary teachings for the prevention of dental and oral diseases and for the protection of the people against dental quackery and loss and suffering due to ignorance, then I have reason to think the Minister of Education will give the matter favorable consideration. I see no reason why this kind of knowledge should not be a part of public instruction administered by the Department of Education.

That knowledge of the kind here referred to would be a vast and far-reaching benefit to the people there can hardly be a doubt. The evidence of loss and suffering due to ignorance is too plentiful for that. But to look at the matter even in the most selfish light, we stand to gain in every way by increase of public knowledge, not only of hygiene, but of all departments of dentistry. By increased knowledge people should more appreciate our efforts. We should be less disgusted and better paid. The dental profession would, moreover, merit a greater measure of public esteem as a body of liberal, learned and generous men.

Complaint is often made that we do not receive the recognition and consideration accorded to physicians, lawyers, or clergy. The indication in this case is to deserve it.

So far as I am aware there has not been issued to the public by the dental profession of Ontario, as a body, one line of instruction in regard to the care of the teeth or anything else to

show that we know or care for public welfare in these respects. A corresponding lack of confidence in us has of late been shown by the Ontario Legislature in the granting of private bills to overrule those powers and privileges conferred upon us by the Dental Act.

The Dental Act was passed ostensibly for the protection of the public, and the privileges and powers so liberally conferred upon us were not intended to make us monopolists, but rather to enable us the better to serve the public in all things pertaining to dental surgery.

It would, therefore, seem our duty to begin a work for the public benefit that would at the same time restore the confidence of the Legislature and the people in our willingness to recognize our responsibilities as well as our privileges. For if we are not responsible for the deplorable ignorance of the public concerning those things we alone are qualified and privileged to teach, then who is?

The function of a profession enjoying statutory privileges and craving recognition as a learned body should be something more than to make money out of the diseases, misfortunes, and accidents of the people. So, if we are to establish and teach a uniform and successful mode of procedure for the maintenance of oral hygiene we shall deserve, and may expect, a certain measure of that consideration hitherto so conspicuously wanting.

In closing, I trust that I have sufficiently indicated what I conceive our needs to be in the matters just considered. I trust, also, that should the committee see fit to act on my suggestions they will see to it that essayists shall deal with particulars—exactly what to do and how to do it—and avoid vague generalities and rhetoric.

Many and important advantages not here mentioned would follow the accomplishment of this work. But in this letter time and space are wanting to state them.

Truly yours,

W. C. GOWAN.

WANTED.

A position as assistant by graduate, twelve years' experience.
Apply to the DOMINION DENTAL JOURNAL.

Dominion Dental Journal

VOL. XVII.

TORONTO, OCTOBER, 1905.

No. 10.

Original Communications

AN ACT RESPECTING THE DENTAL ASSOCIATION OF MANITOBA.

Whereas the profession of dentistry is extensively practiced in the Province of Manitoba, and it is expedient for the protection of the public that a certain standard of qualification should be required of each practitioner of said profession, and that certain privileges and protection should be afforded to such practitioners (R.S.M., c. 44, Preamble).

Now, therefore, His Majesty, by and with the advice and consent of the Legislative Assembly of Manitoba, enacts as follows:

SHORT TITLE.

1. This Act may be cited as "The Dental Association Act" (R.S.M. c. 44, s. 1).

ORGANIZATION.

2. The Association heretofore incorporated under the name of "The Manitoba Dental Association" is hereby continued, and shall be deemed to be a body corporate and politic, and by the said name shall have perpetual succession and a common seal, with power to break, alter, change or make new the same, and by the name aforesaid may sue and be sued, implead and be impleaded, answer and be answered unto in all Courts and places whatsoever, and may have, hold, receive, enjoy, possess and retain for the purposes of said Association all such sums of money as may at any time be given or bequeathed to and for the use of the same, and by the said name may purchase, take, hold and enjoy any real estate, or any estate or interest derived or arising out of real estate, for the purpose aforesaid and for no other purpose, and may sell, grant, lease or otherwise dispose of the same;

but the real estate so held by the said Association shall at no time exceed in annual value the sum of five thousand dollars. (R.S.M. c. 44, s. 2.)

3. The following persons shall be members of and shall constitute the said Association, namely:

(a) Every person who, at the time of the coming into force of this Act, is a duly qualified and registered member of said Association under the provisions of "The Manitoba Dental Association Act," being chapter forty-four of the Revised Statutes, and Acts amending the same, or under any other Act of the Legislature of Manitoba relating to the said Association;

(b) Every person who shall hereafter be duly licensed and registered under the provisions of this Act. (R.S.M. c. 44, s. 3.)

BOARD OF DIRECTORS.

4. There shall be a Board of Directors of said Association, which shall consist of six members, who shall, except as herein-after provided, hold office for four years. Except at the first election of directors after the passing of this Act, three of said directors shall be elected each second year. At the first election aforesaid six directors shall be elected, three of whom shall be elected to hold office for four years, and three for two years. The three directors at such first election receiving the greatest number of votes shall be deemed to be elected for the four-year period, and the three receiving the next largest number of votes shall be deemed to be elected for the two-year period. In the event of a tie between any candidates at such election, the President of the Association, at the time such election is held, is authorized to determine which of the parties affected by the tie is elected, or which of such parties shall hold office for four years and which for two years. Any director may at any time resign by letter directed to the Secretary; and, in the event of any such resignation or of a vacancy occurring by death or otherwise, the remaining members of the Board, or a majority of such remaining members, shall elect some fit and proper person from among the members of the Association to supply such vacancy.

5. An election of directors of the said Association shall be held in the City of Winnipeg on the second Monday of January in every year, the first election after the passing of this Act being held on the 9th day of January, A.D. 1906. One month's notice of each election of directors shall be given by circular by the Secretary to each member of the Association, provided that any oversight or omission in giving such notice shall not void the election. If for any reason the election of directors shall not be held on the date specified in this Act, it shall be held on such date hereafter as shall be appointed by the directors in writing by a letter addressed to the Secretary.

(a) In the event of the election of directors not being held

on any of the days aforesaid, the directors in office shall continue to hold office until their successors are appointed.

(b) The members of the Association may, at any election of directors, cast their ballot without being actually present at the place where the election is being held, provided that such ballots shall be sent or handed to the Secretary of the Association so as to be received by him prior to the hour fixed for the holding of an election. In the event of ballots so sent or handed, they shall be signed by the members of the Association voting and shall set forth the names of the candidates for whom such member votes. In the event of any such ballot being marked for more names than there are vacancies, such ballot shall be rejected. Ballots so sent or handed shall be enclosed in an envelope, and shall be so marked on the outside as to indicate that the envelope contains a ballot.

6. The persons qualified to vote at the said election shall be those licentiates who have obtained certificates of license under the provisions of this Act, or any of said former Acts, and who are at the date of such election duly registered under this Act. (R.S.M. c. 44, s. 6.)

7. The members of the present Board of Directors and the officers of the said Association as at present constituted, until their successors are duly elected, shall continue to act and exercise all powers and authority as if they were elected under this Act. (R.S.M. c. 44, s. 7.)

8. The election of directors shall be by ballot, and the licentiates receiving the highest number of votes shall be the directors for the ensuing term. (R.S.M. c. 44, s. 9.)

9. The Secretary of the Association shall publish in the *Manitoba Gazette* the names of those persons who have been elected members of the Board of Directors, such publication to be made in the issue of the said *Gazette* appearing next after the said election shall have been held, or so soon thereafter as the Secretary can reasonably cause the same to be published.

OFFICERS.

10. The Board of Directors at their first meeting shall elect from among themselves a President, a Secretary, a Treasurer and a Registrar. (R.S.M. c. 44, s. 11.)

MEETINGS.

11. The Board of Directors of the Association shall hold two meetings in each and every year in the City of Winnipeg, or such place as may from time to time be fixed by the Board, for the purpose of conducting examinations, granting certificates of license and doing such other business as may properly come before them. Such meetings shall be held on the second

Monday in January and July of each year, and may be continued or adjourned until the business before the Board is disposed of.

12. The said Board shall have no power to transact any business of the Association, unless a majority of the members of such Board be present. (R.S.M. c. 44, s. 13.)

POWERS OF BOARD.

13. The Board of Directors shall from time to time make such rules, regulations and by-laws as may be necessary for the better guidance, government, discipline and regulation of the said Board and of the profession of dentistry and for the carrying out of this Act. (R.S.M. c. 44, s. 14.)

14. The Board of Directors of said Association shall also have the authority to examine candidates, both for intermediate and final examinations, and to appoint examiners to assist them in conducting such examinations or such portions thereof as they may desire, and they may accept the report of such examiners in respect to the said examinations or any portions thereof, and the directors may grant certificates of license to practice dental surgery in this province.

15. The said Board shall also have power and authority to appoint one or more examiners for the matriculation or preliminary examination of all students entering the profession, or may accept, in lieu of such matriculation or preliminary examination, evidence that any student has passed any other satisfactory examination. (R.S.M. c. 44, s. 16.)

16. The Board shall also have the power and authority to fix and determine the period for which every student shall be articled and employed under some duly licensed and registered practitioner and the examinations necessary to be passed, including such intermediate examinations as the Board may think proper, and including the curriculum of studies to be pursued by students, and to fix and determine the fees to be paid into the hands of the Treasurer of the Association before the applicant shall receive a certificate of license to practice the profession of dentistry or be entitled to registration under this Act, and also to fix the annual fee to be payable by each member of the Association.

17. The matriculation or preliminary examination as provided in the fifteenth section of this Act shall be passed by all students prior to entering into articles of indenture with a licentiate of dentistry, provided that a certificate from the University of Manitoba, that the intending student has matriculated according to the curriculum of the said university, shall be taken in lieu of the matriculation or preliminary examination aforesaid. The commencement of the term of any articled student shall date from the signing of his articles as aforesaid.

18. The Board of Directors shall, at its regular meetings, examine or cause to be examined all candidates for license to

practice dentistry and for registration under this Act who present themselves pursuant to the provisions of the next succeeding sections.

20. Every person being desirous of being examined by the said Board touching his qualifications for the practice of the said profession of dentistry shall, at least one month before the sitting of said Board, pay into the hands of the Treasurer the required fees and furnish him satisfactory evidence of his term of apprenticeship having been fulfilled, and as to the applicant's integrity and good morals. (R.S.M. c. 44, s. 20.)

CERTIFICATE OF LICENSE.

21. The following persons, upon payment of the required fees, shall be entitled to receive certificates of license to practice dentistry in this Province from the Board of Directors of said Association, namely:

(a) All persons in the Province of Manitoba who were and had been in regular and continuous office practice as dentists for a period of not less than six months immediately preceding the seventh day of July, in the year one thousand eight hundred and eighty-three;

(b) Any person who is a graduate of any school of dentistry of any of the Provinces of the Dominion of Canada having authority by law to grant certificates of license or diplomas to practice dentistry, or who is a member of any association or school of dentistry having the like powers in the United Kingdom of Great Britain and Ireland, and who, in either case, produces sufficient evidence of such membership and testimonials of good character and conduct and passes the final examination prescribed for admission of students to practice;

(c) The Board of Directors shall have power to appoint one or more members of the Association as representatives of the Association upon the Dominion Dental Council, and the Board shall, so long as represented on the said Council, accept the certificate of qualification of the said Dominion Dental Council as a qualification sufficient without further examination for the granting to the holder thereof of a license to practice dentistry in the Province of Manitoba, provided such certificate is accompanied by satisfactory evidence of the good moral character of the applicant.

22. If the Board is satisfied, by the examination provided for in the eighteenth section of this Act, that the person is duly qualified to practice the profession of dentistry, or that he possesses any other of the foregoing qualifications, and is further satisfied that the applicant is a person of integrity and good moral character, it shall grant him a certificate of license, subject to the rules, regulations and by-laws promulgated under the authority of this Act, and the title of "Licentiate of Dental Surgery,"

which certificate and title shall entitle him to all the rights and privileges of this Act, subject, however, to the provisions of this Act respecting registration. (R.S.M. c. 44, s. 22.)

23. Every certificate of license shall be sealed with the corporate seal of the Association and signed by the President, Secretary and Registrar of said Association, and the production of such certificate of license shall be *prima-facie* evidence in all courts of law, and in all proceedings of whatever kind, of its execution and contents. (R.S.M. c. 44, s. 23.)

24. No diploma or certificate of license shall be granted to any person under the age of twenty-one years. (R.S.M. c. 44, s. 24.)

REGISTER—REGISTRATION FEES.

25. Every person holding a valid and unforfeited certificate of license to practice dentistry under the provisions of this Act, and who on or before the second Monday of January in each year shall have paid to the registrar appointed by said Board a registration fee of two dollars, or who, having during the then current year obtained a certificate of license from said Association to practice the profession of dentistry, forthwith pays to the said registrar a registration fee of two dollars, shall, subject to the other provisions of this Act, be entitled to have his name entered in the register referred to in the next succeeding section of this Act; and a copy of such register, certified by the said registrar, shall be evidence in any court of justice in Manitoba that the persons therein named are the members of the said Association for the said year. (R.S.M. c. 44, s. 25.)

26. It shall be the duty of the registrar, as nearly as possible in each year, to make a correct register, in the form in Schedule A to this Act, of the names and addresses of all persons who may be entitled to registration under this Act as members of the said Association for the then current year. (R.S.M. c. 44, s. 26.)

27. No person shall be entitled to have his name on the said register unless the registrar is satisfied by proper evidence that such person is entitled to be registered, and any appeal from a decision of the registrar shall be decided by the Board of Directors of said Association. (R.S.M. c. 44, s. 27.)

28. If it shall at any time be proved to the satisfaction of the said Board that the name of any person has been improperly inserted in the register for the year, such name may be erased therefrom by order of said Board. (R.S.M. c. 44, s. 28.)

29. Upon any person being registered under this Act, he shall be entitled to receive a certificate under the corporate seal of said Association and signed by the registrar, in the form in Schedule B to this Act or to the like effect. (R.S.M. c. 44, s. 29.)

30. The Secretary of the said Association shall, on or before

the first day of February in each and every year, enclose to the Provincial Secretary a certified list of the names of all persons then registered as members of the said Association for the then current year. (R.S.M. c. 44, s. 30.)

WHO MAY PRACTICE.

31. All persons registered under this Act, and no others, shall be entitled to practice the profession of dentistry in the Province of Manitoba, and no person shall be entitled to any of the privileges of a licentiate or member of the said Association, or to practice the profession of dentistry, who is in default in respect of any fees payable by him by virtue of this Act. (R.S.M. c. 44, s. 31.)

32. No person shall be entitled to recover in any court of law for any professional service rendered or materials provided by him in the exercise of the profession of a dentist, unless he be a duly and legally qualified licentiate of dentistry and duly registered under the provisions of this Act. (R.S.M. c. 44, s. 32.)

FORFEITURE—PENALTY.

33. If any person not holding a valid certificate of license as aforesaid or not duly registered, shall practice, within this Province, the said profession of dentistry, either publicly or privately, for hire, gain, or hope of reward, or shall voluntarily and falsely pretend to be a duly qualified licentiate of dentistry, or assume any title, addition or description implying or calculated to lead people to infer or believe him to a duly qualified licentiate of dentistry, he shall be liable, upon conviction in a summary manner before any justice of the peace having jurisdiction where the offence is committed, to a penalty not exceeding two hundred dollars and not less than fifty dollars for the first offence, and for each and every subsequent offence to a penalty of four hundred dollars. (R.S.M. c. 44, s. 33.)

34. In case a charge is made against any licentiate of unprofessional conduct, or other misconduct provided for by the by-laws passed or to be passed under the provisions of any of said former Acts or this Act, the Board of Directors shall have power to hear and determine the same, and for this purpose to summon witnesses before them and administer an oath or affirmation to such witnesses; and if any licentiate shall be found guilty of the charge preferred against him, he shall forfeit his certificate and title, and the same shall be cancelled. Such forfeiture, however, may be annulled and the said license and all rights and privileges thereunder fully renewed and restored by said Board, in such manner and upon such conditions and terms as the said Board shall think fit; provided, however, that nothing in this Act contained shall empower the said Board to deal with

any criminal or other offence provided for by law. (R.S.M. c. 44, s. 36.)

35. Any licentiate who shall be convicted of any malpractice shall forfeit his license, and the same shall be cancelled; but the Board shall have power to restore the same if it shall think fit and proper, notice of such restoration to be given for two weeks in some local newspaper to be determined upon by the Board. (R.S.M. c. 44, s. 35.)

36. All prosecutions under the provisions hereof may be brought and heard before any justice of the peace having jurisdiction where the offence is committed, and such justice of the peace shall have power, in addition to the aforesaid penalty, to award payment of costs; and in case such penalty and costs be not paid forthwith after conviction, he shall have power to issue a warrant of distress therefor against the goods and chattels of the party so convicted, and, in default of distress, to order imprisonment for any period not exceeding six months. (R.S.M. c. 44, s. 36.)

37. Any penalties imposed by this Act may be also proceeded for and recovered by suit in any court of law having jurisdiction, and one-half of all penalties recovered shall go to the prosecutor, and the remainder shall be paid to the Treasurer of the said Association and form part of the funds of the Association. Any person may be complainant or prosecutor; provided always that every such prosecution shall be commenced within six months of the alleged offence. (R.S.M. c. 44, s. 37.)

38. In any such prosecution and trial, the onus of proof as to being a legally qualified licentiate of dentistry and a duly registered member of said Association is upon the person charged. (R.S.M. c. 44, s. 38.)

39. Nothing in this Act contained shall interfere with the privileges conferred upon physicians and surgeons by the various Acts relating to the practice of medicine and surgery in this Province; but in case a regular physician or surgeon shall desire to practice dentistry as a profession and to publicly avow himself as a practitioner of said profession of dentistry, he shall first obtain a license from said Board of Directors, by paying the necessary fees and passing an examination in operative and mechanical dentistry only. (R.S.M. c. 44, s. 39.)

40. Nothing in this Act shall prevent any duly indentured and registered student of dentistry from receiving clinical instruction and practice under the personal supervision of a member of the said Association. (R.S.M. c. 44, s. 40.)

MONEY—FEES.

41. All moneys forming part of the funds of the said Association shall be paid to the Treasurer, and shall be applied to carry on the objects of this Act. (R.S.M. c. 44, s. 41.)

42. All fees that are now payable under the provisions of

this Act and the Acts referred to in the third section of this Act and the by-laws of the said Association shall continue to be payable, until duly changed by the by-laws of the Association pursuant to the provisions of this Act. (R.S.M. c. 44, s. 42.)

FORMER BY-LAWS, ETC.

43. All rules, regulations and by-laws in force at the passing of this Act shall be the rules, regulations and by-laws of the said Association, until amended, altered or repealed under this Act. (R.S.M. c. 44, s. 43.)

SCHEDULES.

The following are the schedules referred to in this Act:

SCHEDULE A.—(SECTION 26).

Register.

Name	Residence	Qualification
A. B.	Winnipeg	Certificate of License, 15th March, 1885.
C. D.	Portage la Prairie	6 months' practice prior to 7th July, 1883.
E. F.	Brandon	Member of (<i>Stating name of College or School and where situate.</i>)

SCHEDULE B—(SECTION 29.)

Certificate of Registration.

I hereby certify that A. B., being the holder of a certificate of license to practice the profession of dentistry from The Manitoba Dental Association, was, on the _____ day of _____, 19_____, duly registered as a member of The Manitoba Dental Association, and is authorized to practice his said profession up to the 31st day of December, 19_____, subject to the provisions of "The Dental Association Act."

(Signed), E. F.,

Registrar of The Manitoba Dental Association.

Corporate Seal
of the
Association.

**CONSOLIDATED BY-LAWS OF THE DENTAL ASSOCIATION OF THE PROVINCE OF MANITOBA
IN EFFECT MARCH 1ST, 1905.**

PREAMBLE.

Whereas the Dental Association of Manitoba is incorporated by Act of the Legislature of the Province of Manitoba, in the Dominion of Canada; and whereas power is given to the Board of Directors of the said Association, at its first meeting and from time to time thereafter, to make by-laws, rules and regulations for the government of the said Association and Board, it is hereby enacted by authority of the same:

BY-LAW I.

Immediately following the election of directors as provided for in the Act, the Board of Directors shall elect its officers, who shall hold office for two years, and shall appoint such committees as may be necessary for carrying on the work of said Board.

BY-LAW 2.—DUTIES OF OFFICERS.

Sec. 1.—It shall be the duty of the President to preside at all meetings of the Board; to enforce the due observance of the by-laws, rules and regulations; to announce the result of the voting; to give the casting vote in case of a tie; to see that the other officers perform their respective duties; to appoint such committees as are necessary, not otherwise appointed by the Board, and to sign all orders on the Treasurer recommended by the Finance Committee. He shall also have power to call special meetings, and shall be obliged to do so on a requisition signed by three members of the Board. In the absence of the President, the remaining members of the Board shall select a chairman, who shall discharge the same duties and have the same power and functions as the President.

Sec. 2.—The Secretary's duties shall be to conduct, under the directions of the Board of Directors, the correspondence relating to the affairs of the Association; to keep copies of all such letters written by him and files of all letters received; to keep a true record of the proceedings of each meeting of the Board; to read the minutes of the same at the next regular meeting; to notify members of the meetings; to keep a correct list of licentiates, with the date of license; to lay before the Board a summary of its transactions at each regular meeting; to attest all orders on the Treasurer, and (with the consent of the President) to transact all business requiring attention between the various meetings of the Board, and to deliver to his successor in office all books, etc., belonging to the Board, in his hands.

Sec. 3.—It shall be the duty of the Treasurer to hold all funds of the Board; to pay all orders drawn on him signed by the President and Secretary; to keep a true record of all moneys received and expended by him; to give a report to the Board at every regular meeting upon the state of finances, and to deliver to his successor in office all books, papers and other property belonging to the Board that may be in his possession.

Sec. 4.—It shall be the duty of the Registrar to keep a true record of all certificates of license issued by and under the authority of the Board; to insert the date of certificate, name of licentiate, qualification, etc., in a book specially provided for that purpose; to receive such fees and issue such certificates as called for in Sections 25 and 29 of “The Manitoba Dental Association Act”; to forward to the Treasurer, at least once a year, the moneys received by him, and to deliver to his successor in office all books, papers, etc., belonging to the Board, in his hands.

BY-LAW 3.—SECURITY OF TREASURER.

The Treasurer of this Board shall give security to the satisfaction of the Board in the sum of one thousand dollars (\$1,000) lawful money of the Province for faithfully accounting for the moneys he may receive as such.

BY-LAW 4.—CERTIFICATE.

Sec. 1.—The Certificate of Licentiate of Dental Surgery to be granted by this Board shall be signed by the President, Secretary, Treasurer, Registrar and members of the Board present when granted.

Sec. 2.—The following shall be the form of certificate:

The Dental Association of the Province of Manitoba, Canada, by virtue of authority vested in it by the Legislature of Manitoba, awards this certificate to _____, who has complied with all the requirements of law, and, after examination by or application to the Board of Directors, has been adjudged qualified to practice dentistry in all its branches and entitled to the title of Licentiate of Dental Surgery, which is hereby conferred on him.

In witness whereof, we have hereunto subscribed our hands and affixed the seal of the Association, at the City of Winnipeg, in the Province of Manitoba, this _____ day of _____, in the year of our Lord one thousand nine hundred and _____.

BY-LAW 5.—ASSOCIATION SEAL.

The seal of the Association shall be a maple leaf in the centre surrounded with the words “Dental Association of the Province of Manitoba.”

BY-LAW 6.—TO PROVIDE FOR MATRICULATION.

Sec. 1.—To obtain a Certificate of Matriculation in the Dental Association of Manitoba, the candidate must forward to the Secretary of the Association, with the prescribed fee, an official certificate of having matriculated in the Faculty of Arts in the University of Manitoba.

Sec. 2.—The fee to be paid to the Secretary of the Association for certificate of matriculation is ten dollars (\$10).

BY-LAW 7.—INDENTURES.

The student having matriculated as above, will enter into indentures with a licentiate of Manitoba for four years. Blanks for this purpose will be furnished by the Secretary in triplicate, one copy of which is to be returned to the Secretary to be filed in his office within thirty days of the signing of said indentures. The articles require that the whole of the four years be spent as a *bona-fide* pupil in the office of his preceptor, exception only being made for such time as the student shall be engaged in the study of dentistry at a reputable college.

BY-LAW 8.—EXAMINATIONS.

All applicants for license other than those possessing certificate of registration from the Dominion Dental Council are required to pass an examination on the following subjects: Histology, anatomy, chemistry, physiology, *materia medica* and therapeutics, dental pathology, dental medicine and surgery, operative dentistry, prosthetic dentistry, and orthodontia, and to perform operations before the examiners, to exhibit specimens of his skill as a mechanical dentist, and, if called upon, to construct practical cases in the presence of an examiner.

2.—Indentured students may write on the first four subjects at the expiration of their third year. Application must be forwarded to the Secretary at least one month before the date of such examination. In case any applicant shall fail in more than three subjects, his failure shall be deemed complete, and the fee paid by him shall be refunded, less twenty dollars; but in case the applicant fail in one or more subjects (not more than three), he may be given a supplemental examination in such subject or subjects, and the fee for such supplemental examination shall be five dollars for each subject.

Sec. 3.—The examinations will be held in Winnipeg, commencing on the second Monday in January and July in each year.

BY-LAW 9.—APPLICATION FOR LICENSE.

Sec. 1.—Any student of dentistry desiring to obtain a Certificate of License to Practice Dentistry in the Province of Manitoba is required:

1st. To be of the full age of twenty-one years;
2nd. To have served in the office of a licentiate of dental surgery for a period of four years under indentures in the form approved by the Board of Directors of the Manitoba Dental Association;

3rd. To transmit to the Secretary of said Board, at least one month before the date fixed for the examination, a notice of his desire to be examined for such certificate, accompanied by the Treasurer's receipt for the fee of forty dollars and a declaration by himself, and a declaration by his preceptor, according to the form approved by the said Board, or to the like effect;

4th. To pass examinations as required in By-law 8.

Sec. 2.—Regularly registered physicians and surgeons of Manitoba will be admitted licentiates of dental surgery of Manitoba on—

1st. Furnishing satisfactory evidence of such registration;
2nd. Payment of regular examination fee;
3rd. Passing examination before the Board in operative and mechanical dentistry.

BY-LAW 10.—FEES.

The following are the fees required to be paid:

Matriculation, \$10.

Examination fee for indentured students at completion of term of studentship, \$40; and for those to whom certificates are granted under Sections 21b and c 11, and Section 39 of the Manitoba Dental Act as amended, the fee for said certificate shall be \$100.

Fees for supplemental examinations, \$5 for each subject.

BY-LAW 11.

No student shall, during the term of his indenture, conduct or visit a branch office for the purpose of performing dental operations, nor shall he perform any dental operations elsewhere than at the head office of his preceptor, except when accompanied by such preceptor. Any violation of this by-law shall subject the student offending to the cancellation of his indentures.

BY-LAW 12.

When the period of a student's indenture becomes complete within a few weeks after the date of the regular examination, the Board may, by resolution, admit the student to examination and issue certificate of license on receipt of evidence that the pupilage has been completed, provided such examination has been satisfactorily passed.

BY-LAW 13.—FEES TO MEMBERS OF BOARD.

At each and every meeting of the Board of Directors, the members present shall be entitled to the sum of ten dollars per

day and travelling expenses. Members of the Board who are called upon to attend court or legislature on business of the Board or Association, shall be paid ten dollars per day and travelling expenses, and the Secretary, in addition to fees above mentioned, will receive one hundred dollars per annum for his services.

BY-LAW 14.

Sec. 1.—The election of members of the Board of Directors of the Manitoba Dental Association shall be held, at such place and hour in the City of Winnipeg as the Board shall decide, on the second Monday in January in every second year, reckoning from the year 1906.

ELECTION OF BOARD.

Sec. 2.—It shall be the duty of the Registrar, on the fifteenth day of November prior to an election, to furnish the Secretary a certified alphabetical list of the names of all members of the Association, who, on the said fifteenth of November, are not in arrears in respect to any fees payable under the provisions of the Act respecting the Dental Association of Manitoba.

Sec. 3.—The Secretary shall, not later than the twentieth of November, forward by registered mail, to each and every person whose name appears on the certified list as above, a copy of such list, a nomination paper, a list of those members of the Board whose term of office expires at the approaching election, and the number of vacancies to be filled. All licentiates whose names appear on the list, shall be considered qualified electors, and shall be eligible for nomination; and the qualified elector receiving such list may nominate one or more persons for election, but shall in no case nominate a greater number than there are vacancies. The nomination papers, to be valid, must be returned to the Secretary by registered mail so as to reach him not later than the tenth day of December, and no person shall be considered duly nominated who has not been nominated by at least two qualified electors.

Sec. 4.—Three members of the Board shall be residents of the City of Winnipeg, and the remaining three shall be from any point in Manitoba outside the City of Winnipeg.

Sec. 5.—The Secretary shall, not later than the twenty-sixth of December, forward by registered mail to every qualified elector a list of all those duly nominated, and an addressed return envelope, which shall be so marked on the outside as to indicate that a ballot is contained therein. The elector shall make the mark of a cross opposite the names he wishes to vote for, sign his name thereto, and return to the Secretary by registered mail so as to reach him not later than the day before the date on which an election is to be held.

Sec. 6.—Previous to each biennial election the Board shall

appoint two scrutineers, who shall make before the President a declaration of secrecy similar to that made by scrutineers at a municipal election.

Sec. 7.—At the time and place fixed for the election, the Secretary shall deliver to the scrutineers, unopened, all the voting papers received by him, and the scrutineers shall at once proceed to open them, and count all ballots properly cast.

Sec. 8.—When all the votes have been counted, the scrutineers shall make a certified return of the total number of votes cast and the number of votes each person has received.

Sec. 9.—After the President has announced the result of the voting, if there is no protest, the scrutineers shall at once proceed to destroy the ballots.

Sec. 10.—In case a member shall have neglected to pay all fees due by him, he may make good his qualification as an elector by paying all arrears on the day set for the election.

BY-LAW 15.—ALTERATIONS.

Any section of these by-laws or any of the rules or regulations of the Board may be cancelled, and additions may be made to the same by a two-thirds vote of the members present at a regular meeting, but it shall be necessary for such by-law or alteration to receive the consent of the Association at the next regular meeting, if it is to continue in force.

Books Recommended for Study and Reference.

Gray's or Morris' Anatomy, Kirk's or Foster's Physiology, Atfield's or Roscoe's Chemistry, Klein's Histology, Black's Dental Anatomy, Gorgas' Dental Medicine, Burchard's Pathology and Therapeutics, Kirk's Operative Dentistry, Johnson's Principles and Practice of Filling Teeth, Angles' Treatment of Malocclusion and Fractures of the Maxillæ, Guilford's Administration of Nitrous Oxide, Goslee's Principles and Practice of Crowning Teeth, Long's Dental Materia Medica, Therapeutics and Prescription writing.

Board of Directors for the term ending Monday, January 8th, 1906: President, G. J. Clint, L.D.S., Winnipeg; Secretary, G. F. Bush, L.D.S., Winnipeg; Treasurer, G. C. Mathison, L.D.S., D.D.S., Winnipeg; Registrar, S. W. McInnis, L.D.S., D.D.S., Brandon; R. H. Robertson, L.D.S., D.D.S., Portage la Prairie. The Board meets for the examination of students in the City of Winnipeg, on the second Monday in January and July. Blank forms of application and all necessary information will be furnished on application, with stamp, to

G. F. BUSH, *Secretary.*

NEW DENTAL LAW.—AN ACT TO REGULATE THE PRACTICE OF DENTISTRY IN THE TERRITORY OF OKLAHOMA.

Be it enacted by the Legislative Assembly of the Territory of Oklahoma:

Section 1. A board shall be appointed by the Governor of the Territory of Oklahoma, to be known as the Territorial Board of Dental Examiners, which shall consist of five practicing dentists, whose duty it shall be to carry out the provisions of this Act. The term for which the members of said board shall hold their office shall be five years; except that the members appointed upon said board first after its creation by this Act shall hold their offices for the term of one, two, three, four and five years, respectively, and until their successors shall be duly appointed and qualified. Vacancies in said board shall be filled by the Governor. Each member of said board must have been a legal practitioner of dentistry within the Territory of Oklahoma for a period of two years prior to his appointment upon said board. No person shall serve to exceed two terms in succession as a member of said Board of Examiners.

Sec. 2. The Territorial Board of Dental Examiners shall choose one of its members as president, one as secretary, and one as treasurer. It shall meet at least once every three months in each year, and as much oftener as may be necessary, and at such times and places as it deems necessary. A majority of the board shall constitute a quorum.

The proceedings and records of the board shall, at all times, be open to public inspection.

Sec. 3. Any person twenty-one years old who may desire to begin the practice of dentistry in the Territory of Oklahoma shall file his name, together with an application, with the secretary of the board; at the time of making such application, he shall pay, to the secretary of the board, an application and examination fee of twenty-five dollars. He shall present himself at the next regular meeting thereafter of the board, to undergo an examination before that body. All persons shall be eligible to such examination. The examination shall be elementary and practical in character, but sufficiently thorough to test the fitness of the candidate to practice dentistry. All persons successfully passing such examinations shall be registered as licensed dentists in the board register, also in the office of the county clerk, as provided herein below. He shall receive a certificate of registration, which certificate must be signed by a majority of the board. The provisions of this section shall not apply to residents of this territory who now hold valid and legal license to practice dentistry in this territory, and such persons shall not be required to submit to

any further test or examination. The examination fee shall in no case be refunded; but in case the applicant fails in the first examination taken by him, he may take subsequent examinations for license to practice dentistry; the fee for such subsequent examinations shall be five dollars.

Sec. 4. Each recipient of said certificate of registration shall present the same for record to the county clerk in the county in which he resides and practices dentistry. The clerk shall record the certificate in a book to be provided by him for that purpose. Any person so licensed, changing his residence from one county to another in this territory, before engaging in the practice of dentistry in such other county, shall obtain from the county clerk of the county in which his certificate of registration was originally recorded a certified copy of such record, and shall, before commencing to practice in such other county, file the same to be recorded with the county clerk of the county to which he removes. In case of failure, neglect or refusal on the part of any person holding such certificate or copy of record as above provided, within six months after the issuance thereof, such certificate or copy or record shall be deemed to be forfeited. For recording such certificate of registration or copies or records the county clerk shall be entitled to a fee of fifty cents. For making or certifying a copy of any certificate the county clerk shall be entitled to a fee of one dollar. The provisions of this section shall apply so far as applicable to all those who may have been admitted to practice dentistry under existing laws; provided, such persons shall have a period of six months after the taking effect of this law within which to comply with its provisions.

Sec. 5. Any person who shall practice or attempt to practice dentistry, or who shall hold himself out as a practitioner of dentistry, within the Territory of Oklahoma, without having complied in every respect with all the provisions of this law, or any person who shall violate any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, may be fined not less than fifty dollars nor more than two hundred dollars, or be imprisoned in the county jail not less than one month, nor more than three months, or may be punished by both such fine and imprisonment; and all fines collected under the provisions of this Act shall be paid into the county treasury of the county where the offence was committed, and shall be credited to the common school fund of such county; provided, however, that nothing in this Act shall be taken to prohibit legally authorized physicians and surgeons within the Territory of Oklahoma from extracting teeth.

Sec. 6. Whenever it is found that for any reason a certificate of registration has been granted by the board to a person who under the terms and provisions of this Act was not entitled to the same, the board shall have the power to summon said person before it and hear evidence and make inquiry as to whether

said certificate was rightly issued or not, and if upon due inquiry it shall find that such certificate was not rightly issued as contemplated by this Act, then the board shall revoke and cancel the license to practice dentistry, and the certificate of registration. After such revocation and cancellation, if such person practices or attempts to practice, or holds himself out to practice, dentistry within the Territory of Oklahoma, he shall be subject to the penalties prescribed by Section 5 of this Act.

Sec. 7. Out of the funds coming into the possession of the board, each member of the board shall receive as compensation the sum of five dollars per day for each day actually engaged in conducting examinations referred to in this Act, and matters connected therewith, and in addition shall be entitled to a mileage at the rate of three cents per mile for all distances necessarily travelled in going to and coming from meetings of said board, and shall be entitled as well to the legitimate expenses incurred by him while going to and from and attending meetings of the board. No part of said compensation, mileage or expenses shall be paid out of the territory treasury. All moneys received in excess of the compensation, mileage and expenses above provided for shall be held by the secretary of the board as a special fund for meeting the expenses of the board and carrying out the provisions of this Act. The secretary and treasurer shall give such bonds as the board shall from time to time direct. The board shall make an annual report of its proceedings to the Governor of the territory, not later than the fifteenth day of December of each year, which report shall contain an account of all moneys received and disbursed by them pursuant to this Act.

Sec. 8. Every person lawfully engaged in the practice of dentistry in the Territory of Oklahoma at the time that this law shall take effect shall within sixty days from that time re-register with the secretary of the board and pay an annual license fee of one dollar, and the secretary shall issue an annual license certificate to each person so registered. Any person failing to comply with the provisions of this section within the period therein stated shall be subject to the penalty provided by Section 5 of this Act.

Sec. 9. Each registered dentist shall each and every year pay to the Territorial Board of Dental Examiners the sum of one dollar as a license fee, this payment to be made prior to May 1st of each year. Upon default in the payment of this license fee by any person, his certificate may be revoked by the Board of Dental Examiners upon twenty days' notice, to be given to such person, of the time and place of the considering of such revocation; but no license shall be revoked for the non-payment of any license fee if the person so notified shall pay the fee before or at the time of such consideration, and further pay such penalty as may be imposed by the board, which penalty shall not exceed the sum

of five dollars. The Territorial Board of Dental Examiners may collect all such annual license fees by suit.

Sec. 10. The county clerk of each county shall furnish annually, before the first day of December of each year, to the Territorial Board of Dental Examiners, upon blanks to be provided by such board, a duplicate list of all certificates received and issued by him during the preceding year, and shall include therein the date and issue of said certificates and name, age and residence of the person receiving the same.

Sec. 11. The Board of Territorial Dental Examiners may sue or be sued under the name of the Territorial Board of Dental Examiners of the Territory of Oklahoma, and no suit shall abate by reason of any change of membership of this board.

Sec. 12. All effects and property of the Board of Dental Examiners created by the Act of the Legislature of Oklahoma under date of December 25th, 1890, shall on the first day of June, 1905, be and become the property of the Territorial Board of Dental Examiners created by this Act, and the latter board hereby created is to be the legal successor of the board created by the said Act of December 25th, 1890.

Sec. 13. Chapter 29 of Wilson's Revised and Annotated Statutes of Oklahoma, 1903, and all Acts and parts of Acts in conflict herewith are hereby repealed; such repeal, however, not to take effect until the first day of June, 1905.

Sec. 14. This Act shall take effect from and after the first day of June, A.D. 1905.

Approved this 11th day of March, A.D. 1905.

Selections

SOMNOFORM—ITS PHYSIOLOGICAL ACTION AND ADMINISTRATION.

BY DR. FLORESTAN AGUILAR OF MADRID, SPAIN.

Read at the Fourth International Dental Congress, St. Louis, Mo., August, 1904.

Everything tending to the alleviation of pain is of such importance to those devoted to the practice of dentistry that we observe with a marked degree of interest anything pertaining to the fields of general and local anesthesia. The discovery of Dr. Rolland, director of the Dental School of Bordeaux, of the mixture which he has named *somnoform*, and which consists of ethyl chlorid 60 per cent., methyl chlorid 35 per cent., and ethyl bromid 5 per cent., I consider to be one of the most important clinical discoveries of modern times. At the congress of the Association Francaise pour l'Avancement des Sciences, held in 1901, Dr. Rolland presented for the first time an essay on somnoform, accompanied by clinical demonstrations. Since then its use has been largely generalized in Europe, where over 25,000 patients have been anesthetized by Dr. Rolland himself. These cases, together with others recorded at the hospitals of England and France, and in the medical department of the University of Madrid, constitute a total of over 100,000 cases in which the properties of this anesthetic have been tried.

A series of 100,000 favorable cases confirms without doubt the satisfactory laboratory experiments previously carried out, showing conclusively the advantages of this agent over chloroform and nitrous oxid, from the minimum of danger incurred by its administration when employed for brief anesthesia.

Upon the brilliant studies undertaken by Dr. Rolland, and the writer's own experience and investigations in the laboratory of physiology of the University of Madrid, the notes have been prepared which I now have the honor of submitting to your consideration and discussion.

In order that an anesthetic should enter the respiratory tract and act on the nerve centers, it must be in the gaseous form; and the rapidity of its absorption is in direct ratio to its degree of diffusibility. This the force which causes the blood corpuscles to become saturated with the narcotic vapors instead of with oxygen; therefore the action of the gas on the nervous

system will be rapid in proportion to the rapidity of saturation. Dr. Rolland presents the problem of anesthesia in the following propositions:

First: To produce anesthesia it is necessary that the tension of the anesthetic gas be superior to that of oxygen, so that it may in a certain proportion take the place of the latter in the pulmonary alveoli.

Second: The tension of a gas being proportionate to its volatility, the more volatile the gas is, the easier can it be made to take the place of oxygen.

Third: The ideal anesthetic, if such be attainable, would be the one behaving in its conditions of entry, of sojourn, and of exit from the body, as does oxygen.

If we follow the course of oxygen in the body, we see that the red blood corpuscles, after becoming charged with oxygen in the lungs, during inhalation, distribute it to the tissue throughout the body. The blood corpuscles have their period of activity during their course through the arterial system. When the oxygen has been given up, the corpuscles return through the venous system to the lungs in an inert and dormant state; and there by contact with oxygen resume again their former activity. Now, as about twenty-five or thirty seconds are necessary for a red corpuscle after leaving the heart to return to it, we can say that in this diagrammatic division of the circulation in two parts, one arterial and the other venous, the action of the oxygen would last from twelve to fifteen seconds; therefore an anesthetic capable of being absorbed practically in the same manner as oxygen should produce its effect in about fifteen seconds, and when the administration is discontinued it should be eliminated in proportion as the corpuscles of the blood come again into contact with the oxygen. This, almost to exact precision, is what takes place with somnoform. In the study of this physiological action we observe that somnoform produces the following phenomena.

ON CIRCULATION.

Somnoform has a powerful action on the sympathetic system, increasing the arterial tension and the frequency of the cardiac contractions. A series of curves of the blood tension, taken with the sphygmograph of Marey and the sphygmomanometer of Potain on the radial artery of Dr. Rolland, showed in twenty minutes a variation of from $13\frac{1}{2}$ of normal blood pressure to $14\frac{1}{2}$, 17, 17, 13, 14, 15, 14, 14, $13\frac{1}{2}$. during, through, and after the anesthesia. The pulse, which formerly was 76 per minute, presented in the same observation a frequency of 76, 84, 76, 68, 68. Respiration, which when normal was 16 per minute, went up to 28, 20, 19, 20, 20. And a careful microscopical study of the blood of subjects under somnoform showed that the

anesthesia of from five to eighteen minutes' duration produced no important modifications in the blood. The urine of the anesthetized persons also remained normal.

THE NERVOUS SYSTEM.

Microscopical studies of the cerebral centres show the modifications produced by somnoform on the neuron. The neuron, as is well known, is the anatomical nerve element, or the nerve cell and its branches, as discovered and investigated by Ramon y Cajal, of Madrid, and is composed of three parts: First, a central part which is the real cell, with its protoplasma containing elements with and without peculiar affinity for coloring matter, and its nucleus; second, a peripheral part made up of protoplasmic branches and the various ramifications (dendrites), with ends which do not anastomose; and third, the more peripheral part formed by the axis cylinders, which do anastomose.

THE CEREBRUM AND CEREBELLUM.

The investigations were made on the cerebrum and cerebellum of rabbits and cats; first, on non-anesthetized animals (control subjects); second, on the animals at the end of an anesthesia varying from five to fifteen or twenty minutes; third, on animals at the end of a prolonged anesthesia (one hour or more); and fourth, on the animals one hour after consciousness had returned.

The staining of tissue was made by the rapid method of Ramon y Cajal, of Madrid, and by the method of vital staining of Ehrlich by the intravascular injection of Gubler's methylene blue.

In the right carotid artery of the animal experimented upon, injections were made every five minutes of from 2 to 10 c.c. (or according to the size of the animal) of methylene blue. At the end of a half hour the brain-case was opened and microscope sections were obtained. The researches were always controlled on non-anesthetized animals.

The changes brought about in the neuron by somnoform differ in the various regions of the cerebrum and cerebellum, also in accordance with the duration of the anesthesia.

FIRST SERIES: SHORT ANESTHESIA.

Cerebral Covering.—The pyramidal cells with their branches remained normal; they did not change in size. The chromophile granulations of the protoplasm could be clearly seen; the nuclei were normal.

Cerebella Covering.—The methods of Golgi and Nissl show the sharp modifications undergone by cells of Purkinje, a slight deformation and irregularity of shape. The protoplasmic pro-

longations were varicose. It appears that from the beginning of anesthesia the mixture has a particular action on the nerve elements of the cerebellar covering.

SECOND SERIES: DEEP AND LONG ANESTHESIA.

In this series of experiments the guinea-pigs died at the end of a quarter of an hour or after twenty minutes. Cats, as well as rabbits, resist for several hours. Where fragments of the nerve centres have been removed from the living animal, or from an animal which has just died, the results obtained by examination are the same, and the modifications are as clear in the cerebral as in the cerebellar covering.

Cerebrum.—The cells diminish in volume. The protoplasm presents excessively clear zones, and the protoplastic branches remain intact.

Cerebellar Covering.—The modifications of the cells of Purkinje are very marked. The protoplasmic branches are deformed and present varicosities and knots.

THIRD SERIES : ONE HOUR AFTER RECOVERY.

There was return of all the elements to their normal state excepting the cells of Purkinje, which are slower to regain their normal form.

Speaking of these experiments, Dr. Rolland concludes as follows: "Somnoform has an elective action on the cells of Purkinje, thus suppressing sensitivity to pain and temperature —its passage through the cerebellum; and when there is saturation or excess of the anesthesia the pyramidal cells are impressed, determining loss of consciousness." It only remains to state that the results of this observation show that the minimum of danger is incurred in the administration of somnoform, which during a short operation causes sleep without in any way acting on the cerebral covering. This selective power on the part of certain substances for a definite portion of the nervous system should not be surprising to us. We know, for instance, that chloroform, ether, and alcohol have in their action a preference for the cerebral covering; that cocaine in moderate doses acts on the peripheral endings of sensory nerves; that strychnin shows a preference for the cellular elements of the anterior columns of the spinal cord; that nicotin paralyzes the nerve centres of the sympathetic ganglia; that curare acts on the motor nerve endings. These experiments show conclusively that somnoform acts first on the cerebellum and secondarily on the cerebrum.

CLINICAL STUDY.

Somnoform, as is the case with any other anesthetic, determines in the patient three well-defined states: First, pre-anes-

thetic period, or that of induction; second, anesthetic period, or that of resolution; third, post-anesthetic period, or that of elimination or return to consciousness.

In each one of these periods we observe two types of phenomena, subjective and objective.

The subjective phenomena in the first period are emotional: a feeling of anxiety, of suffocation, blurred vision, tinnitus aurium, light tickling in the extremities, and the strange sensation of having a warm compress on the cerebrum from the occipital to the frontal lobes.

In the second period, or that of true anesthesia, the patient experiences no sensation whatever.

The third, or post-anesthetic period, commences by a sensation of far-away buzzing, the reappearance of the sense of hearing, dreams of different types, gay, religious, amorous, professional, etc., generally in relation to the subject of which the patient was thinking immediately before the anesthesia. At first he fails to recognize the place and the persons that surround him, this state being followed by return of motion, with a tickling in the extremities.

Clinical Classing of Cases.—Clinically we can group the patients into three classes, as follows:

The first class, embracing 90 per cent. of all cases, is constituted of those patients who are tranquil and unresisting. With a dose of from 3 to 5 c.c., in from fifteen to thirty seconds they are anesthetized, and they remain so for from fifty to seventy seconds, and sometimes for nearly two minutes. When they regain consciousness they are pleased, and express satisfaction and wonder at the slight amount of inconvenience they have experienced.

The second class will be more difficult to anesthetize. It comprises the restless class of patients who involuntarily resist anesthesia. When the administration begins they fight to get the mask off the face; they swallow but do not breathe, at first; sometimes they cry out, but finally lapse into unconsciousness. These patients are found in the proportion of 8 or 9 per cent.

The third class of patients is constituted of the alcoholic, epileptic, hysterical, and tobacco users. They are difficult to anesthetize, and the elimination of the anesthetic takes place slowly. They are irritable and the anesthetic seems to have on them a hysterogenic action, provoking a nervous crisis. Fortunately, patients of this kind will be found only in a proportion of about 1 per cent.

METHOD OF ADMINISTERING SOMNOFORM.

Always employ a mask or inhaler in preference to a handkerchief or waterproof cone, with which it was originally applied. The inhaler will permit, not only the exact measurement of the

dose employed, but also rapid induction by reason of the total exclusion of air—a factor of great importance. After seating the patient with the head in line with the body, explain that deep inhalations should be taken, that the liquid has a slightly irritating odor, and that it will produce a quiet and agreeable sleep, particularly if he can induce himself to think of something pleasant. The pneumatic pad of the inhaler having been inflated and tried on the patient's face, pour the somnoform from the bottle into the chamber of the inhaler in the dose of 5 c.c., or the contents of a capsule; close the chamber very rapidly, and instantly apply the face-piece. Generally in about twenty seconds the action of the agent will begin and the signs of general anesthesia will be evident, namely, cessation of the ocular movements, drooping of the eyelids, dilatation of the pupils, complete relaxation, occasionally rigidity of the arms, and loss of corneal reflex. The induction is complete in from thirty to forty-five seconds, and the anesthesia lasts from sixty to ninety seconds. The pulse slightly increases in frequency and tension, and the color of the face remains completely normal without trace of the cyanosis that appears when nitrous oxid is employed. When recovery of the patient begins, analgesia persists during some seconds, allowing a little more time to operate with the patient in a semi-conscious state. In four or five minutes the patient completely recovers.

In conclusion, I consider somnoform the most valuable general anesthetic in dental practice, from the rapidity of its induction (thirty seconds) and the length of available anesthesia (fifty seconds), from the possibility of administering it to all patients without special preparation, from its pleasant effects, and from its safety, demonstrated not only by the investigations on its actions on the nerve centres, but also by a clean record of over 100,000 cases.

I may add, gentlemen, that I have here the mask that I have been employing in my practice, and also another mask that, since my arrival in America, I have found is manufactured in this country.* As soon as the clinics are organized, to-morrow or the next day, I intend to give a clinical demonstration.

I have brought a patient here this afternoon whom, if the president will allow me, I will anesthetize, so that you can see how quietly the effects of somnoform are produced, and the rapidity with which anesthesia is induced by it. I have used it many hundreds of times in the clinic of the dental department of the University of Madrid. As I say in my paper, Dr. Rolland has a record of over 25,000 cases operated upon by him, and there are additional hospital records in France, England, and Spain, besides private cases, which sum up over 100,000 in all.

*See description of De Trey's Somnoform Inhaler.

The manufacturers prepare somnoform either in little glass capsules like this one which I have here, or in large flasks. These little capsules are convenient, because each contains an exact amount and there is no danger of administering too large an amount. The face-piece contains a piece of cotton, which absorbs the required amount of somnoform. This can be charged every time a patient is operated on. The pipe is very smooth, and can be washed and made aseptic.

Now, the way in which I proceed in my practice is, as stated in my paper, first to explain to the patient that the liquid has a slight pungent odor, that he should be quiet and confident and should think of something pleasant. I have observed that if at the moment one applies the face-piece, reference is made to music, as, "Do you not think you are hearing some nice music; do you not think it is beautiful?" it overcomes the repugnance of the patient, and when he recovers consciousness he has recollections of a musical dream.

Dr. Aguilar then administered the anesthetic to one of the persons present. The total time taken up by the operation was announced as having been three minutes and twenty seconds; the time required to produce the anesthesia, twenty-nine seconds; the duration eighty seconds, while the period of partial consciousness lasted to between eighty and ninety seconds.

DISCUSSION.

THE PRESIDENT.—Gentlemen, you have heard this very interesting paper and have witnessed the demonstration by Dr. Aguilar. It is a method that has not been used, I believe, in this country so much as in France, England, Spain, and Italy. My observation while in Europe last year was that it was being quite commonly administered. In the Philadelphia Hospital it is being used to a certain extent. The paper is now open for discussion.

DR. MORRISON.—I would like to ask Dr. Aguilar in what cases is the administration of somnoform absolutely contraindicated.

DR. SUBIRANA (whose remarks were made in Spanish and were translated by Dr. Aguilar as follows):

Dr. Subirana says that he can speak from the viewpoint of both patient and operator. While at Bordeaux he had occasion to be anesthetized by Dr. Rolland; and while under the influence of somnoform had his hands pierced with a pin and felt absolutely nothing. He was afterward operated on, and he declared himself entirely satisfied. As an operator in Madrid he has recently used somnoform very frequently in his practice with the best results. He insists on the importance of the proper technique in administration. He states that at first he had some

failures, but was convinced that they occurred because air was permitted to mix with the anesthetic vapor. He has also used it in connection with chloroform in general surgery, and cites a case which occurred not many days ago where he assisted a surgeon at a hospital, giving at first somnoform and finishing with chloroform, in order to prevent the period of excitement produced by chloroform. By thus commencing with somnoform he obtained much more rapid anesthesia. He says he got one of the physicians to administer somnoform to him. The physician undoubtedly gave him an overdose, and he says that he was dizzy and sick. He thinks this was due exclusively to the excess of somnoform administered to him and to the imperfection of the administration.

DR. LOSADA.—I may add something to what has been said in the discussion of somnoform. I myself have been anesthetized with somnoform half a dozen times at the very least. I find the action of somnoform very similar to that of nitrous oxid; these two are very much alike in their effects. I find this advantage in somnoform, that the technique is much simpler, because you do not have to carry a big gas outfit. As Dr. Subirana says, if you take an overdose of somnoform—and I have been given an overdose twice, I believe—you do not feel at all well afterward; just as when you take an overdose of gas you do not feel at all well.

Dr. Aguilar has had more practice in the use of somnoform than I have, but my experience has led me to believe that somnoform does not seem to act well on some people. In some cases there is not always a complete loss of consciousness. There is partial anesthesia, but still the patient has some idea that he is alive. In spite of this fact, however, I believe somnoform to be a very useful anesthetic for extractions and minor oral operations. The trouble with all these general anesthetics for me is that their action is very rapid, and sometimes when you have to extract two or more roots it does not give you the time necessary to carry out the operation. That is why in most of my cases I prefer local anesthesia, which does not frighten the patient—at least never so much as does general anesthesia, the effects of which are usually disagreeable.

A MEMBER.—It seems to me that this anesthetic has some advantages over gas. The period of anesthesia is a little longer, and there is the advantage of not having a bulky apparatus; and then, too, it appeared to have an analgesic effect after the profound anesthesia had passed. I wanted to ask Dr. Aguilar if it was practicable to use it to obtund sensitive dentin in order to prepare a cavity without causing too severe pain.

DR. GRIFFITHS.—I would like to ask Dr. Aguilar whether it would be safe in cases of difficult extraction of roots, when the

operation cannot be completed before consciousness returns, to re-administer somnoform at the same sitting.

DR. MATTHEWS.—I should like to ask Dr. Aguilar to state the external symptoms of somnoform anesthesia, the effect on the pupil, on respiration, and on the pulse.

DR. LOSADA.—They are the same as in any kind of anesthesia.

DR. AGUILAR (closing the discussion).—In answer to the remarks made by Dr. Subirana I can only say that I agree with him as to the importance of properly administering the anesthetic. It is very important to exclude all air when once the inhalation has begun. If a perfect occlusion of the apparatus with the face be not made, a very imperfect anesthesia will result and a much larger amount comparatively of the anesthetic, and a longer time, will be required to produce unconsciousness. Therefore, with Dr. Subirana, I likewise insist upon the importance of a total exclusion of air during the administration of the gas. I may also say that it is true, as he has stated, that you can produce a very agreeable chloroform or ether anesthesia by beginning with somnoform, overcoming in this way the excitement period of ether or chloroform anesthesia.

In regard to the remarks made by Dr. Losada, I may add that I have not found that some patients cannot be anesthetized with somnoform. If you will recollect, I said in my paper that there are alcoholics and epileptics who manifest a resistance to the action of somnoform, and upon whom it produces an hysterical effect. That is, it provokes a nervous crisis, just the same as in the case of chloroform or nitrous oxid. You have all doubtless found in the administration of nitrous oxid that some patients exhibit a state of violent excitement. Happily I find the proportion of that class of patients in my practice to be only about one per cent. I have made these computations after consultations with Dr. Rolland, whom I saw before I came here. He also stated that in his experience, covering 25,000 administrations, only about one per cent. of the patients are very difficult to anesthetize with somnoform.

Dr. Griffiths has asked if it be possible to re-administer the anesthetic; that is to say, in the case of several extractions, if the patient returns to consciousness before the operation has been completed. I have done that on several occasions without any bad after-effects.

In regard to the question as to which were the cases in which I considered somnoform anesthesia contra-indicated, I may say, in very marked valvular disorder only.

I may also say that one of the best advantages of somnoform is that it produces absolutely no change in the appearance of the face, which remains perfectly normal.—From *The Dental Cosmos*, December, 1904.

YOUR BREATH.

BY R. B. TULLER, D.D.S., CHICAGO.

I'm a
Friend of yours and
I want to have a heart-to-heart talk with you; yes, you.
You are a pretty decent-looking fellow. Your clothes look reasonably clean and tidy, and your linen fresh, and your hands look soft and well-cared-for, and your nails are well-manicured—not professionally manicured, perhaps, but a very decent job, if you did do it yourself. The barber seems to have had you in hand, too; even to a facial massage, with plenty of hot towels.

I don't wish to offend you in the least—not for anything, and, say, now, you must not be offended. Somebody has *got* to tell you—if you haven't a wife—and sometimes if you have. But please don't look me in the eye. Kindly turn your face away while I propound a question. Do you make Limburger cheese a part of your daily diet—no? Well, it might be an improvement if you did. Aha! are you on?

I've been trying to approach this matter as gently and delicately as I could, and I'm glad you've caught on. It is *rank*. You may have your opinion about my eating Limburger, but this is my inning, not yours. I have the floor and I'm talking to you. I just wanted to tell you what you probably don't know about yourself. Your breath—"Oh, the smell of the jessamine flower" is much more agreeable; and even a burnt woollen rag—well, you can guess what this is, anyway.

To be plain, the afflatus of that embrasure of your physiognomy is not of that divine inspirational character that impels one to linger in the aroma (?) and think lofty thoughts and sentiments, any more than it would to loll on a hot summer day on the banks of "Bubbly Creek," in which the offal of the Chicago stock yards discharges and lies festering for many a day. No, I don't think.

On the contrary, cuss words float through one's brain, and not infrequently audibly through the air, and the first impulse (and the last) is to flee—flee as a bird. But what about those patients of yours. They, no doubt, think cuss words all right, and the sin is on your head; but they can't flee—not for the moment; but they may at the first opportunity, and never return.

Now, sir, this is where I'm your friend. I'm telling you in this quiet, sub-rosa way, so that you may try and correct the evil and avert any such catastrophe. That is what it is, and a dum poor advertisement when your patient's tongue never forgets to give you a left-hander after this fashion: "What a pity it is that

such a nice, pleasant gentleman and fine operator has such a terrible breath!"

You are not the man? What? Do you deny the *rank* impeachment? Well, sure, there is no suggestion of peach or mint about it. It is *vile*. Oh, possibly not to-day, because your health is better than yesterday—your stomach, anyway—and because you have taken extra precautions; but to-morrow, or next day, possibly in an hour after taking some kinds of food. You can never tell, yourself, whether your breath is tainted or not, so don't get sore at me for giving you the tip and being plain about it. Oh, yes, of course, if you have a very dark brown taste in your mouth you may know that your breath is not like an infant's.

You say you take every precaution as regards cleanliness and hygiene? You brush your teeth and use antiseptic washes three or four times a day? Good! Keep it up! But do you make any effort to regulate your diet—except possibly to deny yourself onions and garlic? Is your digestion good? Knowing it is not, do you take any precautions against the putrefying odors that are extremely evident?

Do you drink? Excuse me, I did not ask you to have anything. Not me. If anyone asks you, begin the new year right and politely, but firmly decline. Let your motto be, "No 'suds' for me." Isn't it strange what drawbacks there are to a number of good things in this world—and you can't disguise them, not even with cloves or cardamoms. No, the only thing to do is to let it alone. Cling to the sprinkler, though the spray takes all the crease out of your trousers.

But you smoke? Oh, yes, I've seen you. I've seen you (some of you) with one of those *nasty* cigarettes in your mouth, and here in a civilized community. What's that? You've seen me with a rope? Well, not from any craving inclination to smoke rope. Mine is a two-for-fifty taste, with two-for-five resources. But *you* are the target of this topic, not I. Don't go out and smoke anything and go back and breathe it into the sensitive face of the patient you've got down in the chair and who can't get away. Remember, that at your sweetest you do not smell always like the delicate odor of attar of roses.

Oh, of course, you rinse your mouth and even scrub out your moustache, but tobacco takes several hours to fade away, and you know it. Such efforts as you may use to modify or suppress the disagreeableness is the least you can do, but why don't you use some horse sense? Horses do not pollute their mouths with tobacco.

We have to inflict woes enough on our patients without overwhelming them with a rank breath. Sometimes they come back at us with a worse one, it is true; but we have remedies at hand for temporary relief, while they have none—except to get away from us as soon as they can.

The trouble is, as I have already said, that not one person in a thousand suspects that he has a bad breath until told by some good friend.

Now, what is there to be done for ourselves?—I mean for you. I forgot I was talking just to *you*. Well, use every precaution to keep your stomach in a first-class normal condition, and avoid any ill-smelling diet—that is, ill-smelling after it is down. Yes, you have to be mighty careful of the things you may eat and drink, if you want a nice, clean breath, besides using all hygienic measures (and use them often) for odors that emanate from fermenting and decaying food particles in the mouth. Make it a point to use a good deodorant and antiseptic mouth-wash before beginning service for each patient, and if the service is at all protracted, repeat the dose once, twice or thrice. Treat yourself as a suspect at all times and use precautions, and keep your mouth closed while operating. The older you grow the more the need. You know it well enough.

Dioxogen is my favorite mouth-wash, or something of that order. Nothing burrows into the deep and obscure recesses and brings out the offensive substances better than some of the H₂O₂ preparations of about 3 per cent. strength. When I get hold of a patient with an offensive breath I very soon introduce a dose of peroxid into the mouth on some pretext or other, or without any, and then follow with peppermint water or sanitol.

When we come to nasal catarrhal conditions in ourselves and others, then we sometimes have something hard to contend with, and should refer and urge the patient, or ourselves maybe, to consult a physician. Disorders of the stomach, too, should generally go to the physician.

You know and I know some dentists who set us to wondering how on earth they hold a practice, but if we had something like litmus to test for bad smells in our mouths a good many of us might get a shock. Don't take any chances.—*American.*

Proceedings of Dental Societies

THE UNION MEETING OF THE SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES OF THE STATE OF NEW YORK.

The union meeting of the Seventh and Eighth District Dental Societies of the State of New York will be held in the Chamber of Commerce Rooms, Rochester, N.Y., October 31st, November 1st and 2nd, 1905. Dr. Byram, of Indiana Dental College, will give a clinical lecture on "The Preparation of Cavities, and the Selection and Application of Porcelain for Inlays." Business Committee.

MEETING OF F. D. I. AT HANOVER.

Meeting opened at 10 a.m. in Tivoli Hall, Dr. W. D. Miller, of Berlin, in the chair. Dr. P. Guye, of Geneva, acted as Secretary.

Dr. Kirk sent his resignation as General Secretary, but was reappointed.

Dr. Truman W. Brophy, of Chicago, President of the Education Committee, read an address, the discussion of which was adjourned.

A resolution was adopted that nothing could be done in a country by the F. D. I. against the wishes of the national committee.

Dr. Bryan, of Basle, spoke on "Dental Hygiene," and was followed by Dr. Guye.

At the afternoon session, two committees were established—Nomenclature and History. Dr. Grevers was appointed President of the Nomenclature Committee. Dr. A. E. Webster, of Toronto, was added to the Press Committee, and Dr. E. Dubéau, of Montreal, to the Education Committee.

Dr. Haderup, of Denmark, read a paper, a plea for a cheap brush for the use of poor people.

Dr. Paterson, of London, invited the F. D. I. to meet next year in London, and Dr. P. Guye, in Geneva. Geneva was unanimously agreed upon.

In the evening, a dinner at the Karsten Hotel, presided over by Dr. Miller, closed the meeting.

Present: W. D. Miller, Berlin, Germany; Ch. Godon,

E. Sauvez, B. Platschick, R. Heide, Paris, France; Eudore Dubeau, Montreal, Canada; R. Weiser, O. Zsigmondy, Vienna, Austria; F. Schaeffer Stuckert, Frankfort, Germany; Floreston Aguilar, Madrid, Spain; A. W. Harlan, New York, U.S.A.; W. B. Paterson, London, Eng.; G. C. Campion, G. O. Whittaker, Manchester, Eng.; W. Harrison, Brighton, Eng.; Wm. Guy, Edinburgh, Scotland; V. Guerini, Naples, Italy; A. Chianaro, Rome, Italy; L. G. Bryan, Basle, Switzerland; J. Grevers, Amsterdam, Holland; E. Rosenthal, Brussels, Belgium; O. Smith Housken, Stockholm, Sweden; V. Haderup, Copenhagen, Denmark; Truman W. Brophy, Chicago, U.S.A.; M. Ayrajos, Finland; Paul Guye, Geneva, Switzerland.

Reported by Dr. Eudore Dubeau, Montreal.

FIRST ANNUAL CLINIC OF THE FRATERNAL DENTAL
SOCIETY OF ST. LOUIS, NOVEMBER 20TH,
21ST, 1905, AT THE BARNES DENTAL
COLLEGE.

Special features of the meeting will be a series of lectures on "Cavity Preparation," "Methods and Principles of Packing Gold," "Methods and Principles of Finishing Fillings," by Dr. E. K. Wedelstaedt, of St. Paul. The following well-known members of The Black and Wedelstaedt Clubs will be present, and clinically demonstrate "extension for prevention," to its fullest extent: Drs. A. C. Searl, Owatonna, Minn.; J. F. Wallace, Canton, Mo.; C. W. Booth, Cedar Rapids, Iowa; J. J. Booth, Marion, Iowa; William Finn, Cedar Rapids, Iowa; J. B. Pherrin, Central City, Iowa; Ed. S. Brown, Edina, Mo.; W. T. Rutledge, Monroe City, Mo.; S. E. Wallace, LaBelle, Mo.

Porcelain work will be fully demonstrated by Drs. F. E. Roach, Chicago; W. L. Ellerbeck, Salt Lake City; George F. Banzett, Chicago; W. H. Cudworth, Milwaukee, and Craig W. Work, Ottomua, Iowa.

Other clinics on various subjects will be given by Drs. W. L. Reed, Mexico, Mo.; J. B. Howell, Paducah, Ky.; C. L. Rose, Fargo, N.D.; F. B. Lawrence, Eldorado, Kan.; George D. Sitherwood, Bloomington, Ill.; A. Gaiser, Davenport, Iowa; Fred. Westerfield, St. Charles, Mo.; Otto J. Fruth, St. Louis, and Richard Summa, St. Louis, and others.

The following dealers have signified their intention to be present and display: S. S. White Dental Mfg. Co., Dr. Jenkins' Porcelains, Klewe & Co., A. C. Clark & Co., St. Louis Dental Mfg. Co., John Nolde Dental Mfg. Co., Hisley Dental Mfg. Co., Denthol Chemical Co., Lambert Pharmacal Co., Lee S.

Smith & Sons, Century Dental Laboratory Co., W. M. Berry Dental Laboratory Co., Sanitol Chemical Co., R. C. Brophy & Co., Keeton Williams Gold Co., Horlicks Food Co., Kress & Owens, Oakland Chemical Co., McKeeson & Robbins, and others.

R.R. Rates.—The Western Passenger Association and South-western Excursion Bureau have granted a rate of *one and one-third* fare, plus 25 cents validation fee. Certificate plan for this meeting for the States of Missouri, Iowa, Minnesota, Kansas, Nebraska, and Illinois, on and west of the line of the Chicago and East Illinois R.R.

HOTEL HEADQUARTERS

at Jefferson Hotel, 12th and Locust Streets. Room for one, without bath, \$1.50 and up. Room, with bath, \$2.50 and up. Rooms for two, without bath, \$2.00 and up. Rooms, with bath, \$3.00 and up.

EXHIBITS.

Exhibit space may be obtained by application to the Secretary. If you have a clinic to give, send your name at once to the Supervisor of Clinics.

A cordial invitation is extended to the profession to be present, and assist in making this meeting, limited in scope, but limitless in importance, the best ever held in this section.

D. O. M. LeCron, Missouri Trust Building, Supervisor of Clinics; S. H. Voyles, Secretary, 306 Humbolt Building; Burton Lee Thorpe, President.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The following officers were elected at the meeting of the National Association of Dental Examiners, held at Buffalo on the 24th and 25th of July, 1905:

President: H. W. Campbell, D.D.S., Suffolk, Va. Vice-Presidents: From the West, F. O. Hetrick, D.D.S., Ottawa, Kansas; from the South, F. A. Shotwell, D.D.S., Rogersville, Tenn; from the East, George E. Mitchell, D.D.S., Haverhill, Mass. Secretary and Treasurer: Charles A. Meeker, D.D.S., Newark, N.J. Committee on Colleges: J. G. Reid, D.D.S., Chairman, 1204 Trude Bldg., Chicago, Ill.; George E. Mitchell, D.D.S., Haverhill, Mass.; J. J. Wright, D.D.S., Milwaukee, Wis. Committee on Conference: J. F. Dowsley, D.D.S., Chairman, Boston, Mass.; F. O. Hetrick, D.D.S., Ottawa, Kansas; R. H. Walker, D.D.S., Norfolk, Va. Membership Committee:

M. F. Finley, D.D.S., Chairman, Washington, D.C.; Thomas Cole, D.D.S., Newman, Ga.; C. R. Taylor, D.D.S., Streator, Ill. State Advisory Committee: Henry Barnes, M.D., Cleveland, Ohio; George E. Mitchell, D.D.S., Haverhill, Mass.; E. P. Dameron, D.D.S., St. Louis, Mo.; C. H. Oakman, D.D.S., Detroit, Mich.; W. G. Mason, D.D.S., Tampa, Fla. Committee for Promoting Relations with Foreign Examiners: T. J. Barrett, D.D.S., Chairman, Worcester, Mass.; F. A. Shotwell, D.D.S., Rogersville, Tenn.; F. C. James, D.D.S., Winona, Minn.; C. Stanley Smith, D.D.S., Cincinnati, Ohio. Committee on Resolutions: H. C. Brown, D.D.S., Columbus, Ohio; C. S. Stockton, D.D.S., Newark, N.J.; F. F. Drew, D.D.S., Baltimore, Md. Committee on Contracts: Charles A. Meeker, D.D.S., Newark, N.J. Committee on Tabulation of Examiners' Reports of Examinations: Alphonso Irwin, D.D.S., Camden, N.J.

REPORT OF UNION MEETING OF NOVA SCOTIA, NEW BRUNSWICK AND PRINCE EDWARD ISLAND.

A union meeting of these provinces was held on Wednesday and Thursday, September 6th and 7th, in Halifax, N.S., representatives from the three provinces to the number of fifty being present. The meeting, the object of which was the discussion of maritime dental legislation and unification of dental laws, was called to order Wednesday, at 2.30 p.m.

Dr. J. S. Bagnall, Charlottetown, was elected chairman, and Dr. G. K. Thomson, Halifax, secretary. A number of papers were read as follows:

Dr. J. H. Ayers, "Dominion Dental Council" (by title).

Dr. G. K. Thomson, "Dental Legislation."

Dr. F. Woodbury, "Maritime Dental College."

Dr. F. W. Dobson, "Standard of Matriculation."

These papers received considerable discussion, and a committee was appointed to formulate resolutions in relation thereto, and report at the evening meeting.

In the evening the committee presented a report providing for a uniform standard of matriculation for the three provinces, adopting the standards recognized by the Dominion Dental Council, General Medical Council of Great Britain, in Great Britain and Canada; the matriculation examination of the Dental Boards of the Maritime Provinces to be no lower than the matriculation of the Medical Boards for each province, and the Examining Boards composed of the same members as the Medical Examining Boards, and recommending the appointment of

committees of three members each, by the Dental Councils of New Brunswick and Prince Edward Island, to confer with the committee already appointed by the Nova Scotia Dental Board, in reference to changes in dental law, and the subject of a Maritime Dental College, and that the resolutions adopted by the Nova Scotia Association regarding these matters be given due consideration.

After careful consideration and discussion this report was on motion adopted. Although no resolution was passed to that effect, the sentiment of the meeting seemed to be that the dental laws of the Maritime Provinces should be amended, so that the standards required would be as high as those of the Dominion Dental Council.

Papers by Drs. R. C. Macdonald (of Halifax), Gosham, Barbour, Magee, and McAvenney (of New Brunswick) were read, the two latter by Dr. Godsoe, Drs. McAvenney and Magee being unavoidably prevented at the last moment from leaving home.

On Thursday morning the time was devoted to clinics.

Dr. H. E. Woodman, of Boston, gave a very interesting clinic of methods of making and inserting porcelain filling and unique method of insertion of gold filling by burnishing.

Dr. W. C. Gowan, Creemore, Ont., demonstrated new methods of extracting pulps, and filling of pulp canals; and insertions of combination filling of gutta-percha and amalgam.

Dr. J. S. Bagnall, Charlottetown, showed samples and practical method of expanding the dental arch. Dr. G. K. Thomson, of Halifax, demonstrated the use of Myers' Dental Obtunder in sensitive dentine. Dr. E. A. Randall, of Truro, exhibited models and case of regulating under treatment. Dr. Frank Woodbury showed models illustrating the irregularities of the teeth, and methods of overcoming it.

In the afternoon the visiting dentists, with their wives, were entertained by an excursion on the harbor; a visit to the dry dock and inspection of the *Colonia*, the largest cable ship in the world, docked there for repairs; a delightful sail up the North-West Arm, and afternoon tea at Mrs. Ryan's beautiful summer cottage.

In the evening papers were read by Drs. Oxner, Ritchie, Hibbert Woodbury, and Beckwith, which elicited interesting and instructive discussion. Special votes of thanks were passed to Dr. Gowan, of Creemore, Ont., and Dr. Woodman, of Boston, for their clinics; Brown & Webb, A. J. King, Mr. Horton, and the S. S. White Co. for display of dental supplies, and the Executive Committee, Committee on Entertainment, and Dr. and Mrs. Ryan. Thus closed a union meeting noted for its sociability and unanimous desire to effect a definite advance in the status of the dental profession in the Maritime Provinces.

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.
3 COLLEGE STREET

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VOL. XVII.

TORONTO, OCTOBER, 1905.

No. 10.

LAVAL UNIVERSITY SCHOOL OF DENTAL SURGERY.

The opening of the above school this year was a very brilliant social event. As our readers know, this school gives its lectures exclusively in French, and the reason of this extraordinary opening was to commemorate the coming of French students from Paris to follow the course of the school. The gathering was presided over by the Dean of the school, Dr. E. Dubeau. Amongst those present were Mr. A. Kleckowski, Consul of France for Canada; Canon Dauth, Rector of the University; Dr. F. A. Stevenson, President of the College of Dental Surgeons of the Province of Quebec, etc. All the professors and students were also present. After an address by the Dean in which he reviewed briefly the work and progress of the school during the past year, and also reported the different donations he had received for the school during his recent trip in Europe, the

cordial reception he had received from the French dental schools, and the excellent relations he had established with them, Dr. J. Nolin gave a very interesting paper on the "Evolution of Dentistry." The Rector welcomed the new students and promised the erection of a new building where the school would get a larger accommodation. The Consul of France welcomed also his compatriots, and assured them that they would find Canada a very pleasant country to live in.

OPENING OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

The Royal College of Dental Surgeons opened October 1st with a large attendance of students, the freshman class being the third largest that ever entered the college. It would seem that four courses in dentistry in Canada have rather increased the attendance than diminished it.

Editorial Notes

GLAD to notice the appointment of a son of Dr. W. Adams, of Whitby, Ont., to the staff of the General Hospital, Toronto.

THE first official meeting of the Dominion Dental Council will be held in the Royal College of Dental Surgeons, Toronto, Nov. 15th, 1905.

THE Treasurer of the Board of Directors of the R. C. D. S. has received a good number of fees without the senders signing their names. Any member who is entitled to a receipt and does not get it, will know the reason.

Correspondence.**FURTHER SUGGESTION TO PROGRAMME COMMITTEE OF THE ONTARIO DENTAL SOCIETY.**

To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—I have read with interest Dr. Gowan's letter in the September number of your journal, and, I believe, he has made a suggestion that should be carefully considered.

Some months ago I was asked to give an address in one of the Public Schools of my town, and after reading carefully on the subject I did so. I spoke to the pupils of the two highest grades, and I felt well repaid by the interest it aroused. But concerning many of the detailed instructions, such as the manner of brushing the teeth, the use of soaps, etc., I felt that I could not speak with enough authority, for I knew not how much I said was theoretical and how much was empirical.

For this reason I think the time ripe for the preparation of a work such as that suggested by Dr. Gowan. I feel sure it would be welcomed by many.

Would it not be a good plan to ask the Department of Education to instruct Public School inspectors, to encourage the dentists in their inspectorates to give these talks to the children, and also to address the teachers' associations? I feel sure that much good would result therefrom, and the usefulness and dignity and professional standing of the dental surgeon greatly increased. I would also suggest that the dentists give purely scientific addresses to the people whenever an opportunity presents. I addressed a young men's club here, choosing as my subject, "The Evolution of the Tooth," and not only was it appreciated, but, I think, it helped them to believe that our course in college is not merely a "mechanical" one. If dentistry is ever to be counted as one of the "learned" professions we must prove our ability not only to do good work, but also to take our places among the leading citizens of our district, and I know of no better way of beginning to do this than by bringing a message concerning oral hygiene to the people at large. If there is need of such a message it will be received gladly, and as far as I am personally concerned I am quite willing to risk taking my place among men of other professions. It never strikes me for a moment that because I am not a physician, a barrister, or a clergyman, I cannot win as much respect and admiration from my fellow-men. No number of degrees can ever win a man a place in the hearts of the people, but if we, as members of the dental profession, will endeavor to devote our spare moments to the

acquirement of culture, and will manifest a lively interest in the welfare of our fellow-citizens, we may never fear for the rank we are to take among professional men. Of course if we are endeavoring to gain this lofty pinnacle for the mere gratification of a vain and selfish ambition; then our motive is wrong, and the whole thing will be a failure. Only true and unselfish service will ever meet with true, deserved and lasting recognition.

I trust that Dr. Gowan's hint may be fruitful of good, and that a good practical paper may be prepared.

M. P. CORRIGAN, D.D.S.

Strathroy, Oct. 9th, 1905.

Publishers' Department

THE SANITOL GIRL.

We have just received from the Sanitol Chemical Laboratory Company, manufacturers of the Sanitol Tooth and Toilet Preparations, a beautiful picture of the Sanitol Girl. It is 6x11 inches and mounted on heavy card-board, with rounded corners, and makes a handsome desk ornament.

This picture is an excellent example of the finest lithographic art produced in America. On the back appears a calendar for two years, and a description of all the Sanitol preparations.

The Sanitol Girl is pictured as just coming from her bath, and the appropriate title, "Now for Sanitol," together with her attractive smile and bewitching posture, indicates that she is all ready to use Sanitol, best for the teeth.

We do not remember that the dental profession has ever before been presented with such an attractive picture, and this is a specimen of the fine advertising work the Sanitol people are doing. Copies, we understand, have been sent to every dentist in America, and additional copies can be had by addressing the company.

The rapid strides which this company are making is due, first, of course, to the meritorious preparations which they manufacture, and with the aid of its high grade advertising. We understand that the increase in business so far this year has been 79 per cent. over last year.

Dominion Dental Journal

VOL. VXII.

TORONTO, NOVEMBER, 1905.

No. 11.

Original Communications

THE CANADIAN ARMY DENTAL SERVICE.

BY A. F. A. HOWE, L.D.S. ENG.

Dental Surgeon to the Troops, Southern Command.

The attendance of our Canadian *confrères* at Southport last May has created so much interest at home in all that pertains to dentistry in the Dominion that no apology is needed for accepting the Editor's invitation to give the readers of the *British Dental Journal* the latest available information respecting the Canadian Army Dental Service.

Although unfortunately prevented by official duties from attending the Annual Meeting, I shortly afterwards had the pleasure of making the acquaintance of Dr. Eudore Dubeau, the esteemed President of the Canadian Dental Association, who expressed the wish that I should accompany him on his return, in August, and spend my annual leave in personally investigating the organization and working of the Canadian system.

I am delighted to have this opportunity of acknowledging my indebtedness to Dr. Dubeau, and to the many members of the C.D.A. whom I met, for the elaborate arrangements which were made, for the invaluable assistance which was so courteously afforded, and for the lavish hospitality which was everywhere extended to me. I am also deeply indebted to Colonel L. F. Pinault, C.M.G., Deputy Minister of Militia and Defence, and Colonel E. Fiset, D.S.O., Director-General of Medical Services, for their kindness in giving me much of the information contained in this paper.

It is a matter of history that the Dominion rendered signal service to the Empire during the late South African War, and the contingents which it furnished were some of the finest in the field —a fact to which I can testify from personal experience. The spirit of patriotism in Canada is intense, and, as the keenest

practical interest is taken in all military matters, it will be readily understood that when the profession discovered the serious dental condition of the troops who returned from active service, the dentists of Canada lost no time in urging the Government to take steps to prevent a recurrence of such a state of things. At the first meeting of the C.D.A., held in September, 1902, it was unanimously resolved :

"That the members of the Canadian Dental Association favor the adoption by the Militia Department of provision for a regular army dental staff, which shall be a distinct branch of the service, the members of which shall hold rank as do the general surgeons; and for the attainment of this end that a General Committee be appointed, consisting of two members from each Province and from the Territories, and where two societies exist in a Province that additional members be appointed, so that every society be represented. This General Committee to appoint a Central Sub-committee."

Dr. Ira Bower, of Ottawa, the proposer of the resolution, was elected Chairman of the General Committee, and also of the Central Sub-committee.

The Minister of Militia and Defence, the Hon. Sir F. W. Borden, K.C.M.G., M.D., expressed his approval of the general principle advocated, and on the appointment of the present Director-General of Medical Services the scheme began to take practical shape. It was not found possible to meet the wishes of the C.D.A. in their entirety, the military authorities deciding that the formation of "a regular army dental staff, as a distinct branch of the service" was impracticable. A compromise was, however, effected, and in July, 1904, an order was promulgated which authorized the appointment of dental surgeons to the Militia Army Medical Corps.

Before going further it is necessary to briefly outline the composition of the Dominion Forces, and to describe the organization of the Medical Services.

The Canadian Army—or "Militia," as it is called—is composed of:

- (a) *The Permanent Force*.—The regular troops of the Dominion.
- (b) *The Active Militia*, whose conditions of service closely resemble those of British volunteers ; and
- (c) *The Reserve* (now being organized), to be formed, mainly, of those who have served for at least three years in the Active Militia (b).

The strength of the Permanent Force (a) is being increased from 1,200 to 5,000, in order to relieve the Imperial troops now stationed in Canada, and to form a chain of dépôts from the Atlantic to the Pacific. The strength of the Active Militia (b) is being increased from about 41,000 to 50,000, and that of the Reserve (c) will also be 50,000.

The units comprising the Active Militia (with the exception of certain urban corps) are embodied annually for twelve days' training, and the Reserve will be called up for a like period triennially.

The Army Medical Services consist of two distinct branches :

- (1) The Army Medical Department ; and

(2) The Regimental Medical Service, which is beyond the scope of this paper, and need not be again referred to.

The Army Medical Department (1) is divided into (*a*) the Medical Staff, and (*b*) the Army Medical Corps.

The Medical Staff (*a*) is composed of the Director-General of Medical Services, the principal Medical Officers of the twelve Military Districts into which the Dominion is divided, and such other Medical Staff Officers as are necessary.

The Army Medical Corps (*b*) is subdivided into the Permanent Army Medical Corps and the Militia Army Medical Corps, the latter consisting of (*a*) Medical Officers, (*b*) Dental Surgeons, (*c*) Nursing Sisters, and (*d*) Non-commissioned Officers and men. It is unnecessary to deal here with either the Permanent Army Medical Corps or sections *a*, *c*, or *d* of the Militia Army Medical Corps.

The number of dental surgeons to be appointed was originally fixed at eighteen, but the results obtained by those employed during the Militia training this year were so good that it has been decided to increase the establishment to twenty-five during the next two years.

Dental surgeons receive commissions signed by His Excellency the Governor-General, being given the relative rank of Lieutenant on appointment, and that of Captain after five years' service. Their official designation is, however, "Dental Surgeon," irrespective of the relative rank held. Their status is very similar to that of officers of the Royal Army Medical Corps Volunteers in the British army. The uniform worn is that of the Militia Army Medical Corps, with a distinctive badge ("D.S.").

An applicant for a commission must have been at least three years in practice, and is required to produce his Provincial Dental License and a certificate from the Committee of his District Dental Association showing that he is of good standing in his profession; he must be between the ages of 24 and 45, physically fit, and of good moral character.

Every dental surgeon must report personally, in field service uniform, to the principal Medical Officer of his district at least once a year, as evidence that he is available for duty. Neglect to comply with this order might lead to cancellation of his commission. In peace time his professional services are only liable to be required for a period of twelve days per annum, when the Active Militia are embodied for training.

Dental surgeons can only be detailed for duty on authority from Headquarters, and they are given pay and allowances for those days only on which they are actually employed under that authority. Their pay when employed is that of their relative rank, viz., \$2.00 (about 8s. 4d.) per diem during the first five years of their service, and \$2.82 (about 11s. 9d.) per diem afterwards. It is to be presumed that these rates would be augmented on active service, to compensate for loss of civil practice.

No dental outfit is at present authorized, each dental surgeon being required to provide, and take into camp, such instruments, drugs, material, etc., as are necessary for his professional work, and for which he receives a lump sum of \$10.00 (about £2 1s. 8d.), for

the duration of the camp. In the event of his being ordered on active service he will be paid a special amount if not provided with a dental outfit by the Government.

The chief object of these appointments is to reduce the number of non-effectives by giving immediate relief from pain, and no dental work involving expensive material, or much time and labor, may be undertaken without the recommendation of the senior Medical Officer present, and the sanction of the Officer Commanding the troops.

Officers, non-commissioned officers, and men of the Active Militia actually embodied are alone entitled to dental attendance, after obtaining the written authority of the Officer Commanding Field Ambulance, or a Regimental Medical Officer.

Dental surgeons are required to prepare a daily sick list, and to keep a statistical record of all cases attended by them, for the information of the Principal Medical Officer of the district.

Officers Commanding Field Ambulances are directed to give dental surgeons every facility for carrying out their work, and are also instructed to bring any neglect or dereliction of duty, or any improper conduct, to the immediate notice of the Principal Medical Officer.

It will be observed that there is no provision at present for the dental treatment of the Permanent Force, but it is understood that arrangements will shortly be made for this body to be attended at contract rates by the dental surgeons of the Active Militia. Such a scheme, under expert administration, would appear to be admirably suited to the local conditions, as the Permanent Force will not exceed 5,000 officers and men, the majority of whom will be distributed over a wide area in a number of relatively small detachments.—*British Dental Journal*.

HOW SHOULD ETHICS BE TAUGHT.

BY EDMUND NOYES, D.D.S., CHICAGO, ILL.

Read before the Institute of Dental Pedagogics.

Thirty-five schools belonging to the Association of Dental College Faculties announce lectures on dental jurisprudence. Eight of these also give lectures on ethics, and two upon "Principles of General Practice," which may or may not include the subject of ethics. Those which announce the teaching of ethics are the Dental Department of the Milwaukee Medical College, a professorship of "Oral Hygiene, Dental History and Ethics," (G. R. Wenkler, D.D.S.).

The Colorado College of Dental Surgery, which has separate chairs of dental ethics and jurisprudence (W. H. Hall, D.D.S., ethics).

The University of Southern California, dental department; a chair of ethics, literature and hygiene, (J. D. Moody, D.D.S.).

Northern Pacific Dental College, Portland, Oregon; a chair of dental jurisprudence and ethics, (James R. Cardwell).

The Kansas City Dental College; separate chairs of dental jurisprudence and ethics, (C. B. Hewett, D.D.S.).

The Vanderbilt University Dental Department; a lectureship on dental jurisprudence and ethics, (W. C. Gillespie, D.D.S.).

The Louisville College of Dental Surgery; a professorship of practice, ethics and history, (Max M. Eble, D.D.S.).

The Northwestern University Dental School; a chair of dental ethics and jurisprudence.

Seventeen schools do not announce any formal teaching of ethics or jurisprudence. These are:—Harvard University Dental School, Tufts College Dental School, New York College of Dentistry, University of Pennsylvania Department of Dentistry, Pennsylvania College of Dental Surgery, Medico Chirurgical College Dental Department, Baltimore Medical College Dental Department, University of Maryland Dental Department, Columbian University Department of Dentistry, Ohio College of Dental Surgery, Detroit College of Medicine Department of Dental Surgery, University of Michigan College of Dental Surgery, Chicago College of Dental Surgery, Meharry Dental College, Atlanta Dental College, Southern Dental College.

From this showing, especially as regards the subject of ethics, it would appear to be rather more appropriate for me to come here asking how it should be taught than trying to answer that question, for almost all of our schools must believe that ethics can be sufficiently taught by other methods than by formal lectures. While I am quite ready to acknowledge that "actions speak louder than words" and character and conduct are more influential than preaching, and it is therefore of the utmost importance that everything in the conduct of a dental school and every one of its instructors should conform to the

highest standards of morality, I hope to make it appear that formal instruction in the special duties and relations of professional men, particularly the different standards of duty appropriate to business men and professional men is very important also. I can best accomplish this and the general answer to the question "How should ethics and jurisprudence be taught?" by giving you, more briefly than I could wish, but as fully as the time at my command will permit, an account of the course of lectures I have been giving for some years past in the Northwestern University Dental School.

It is a half course, one lecture each week, ending with the first semester, usually eleven or twelve lectures. Three or four lectures are given to the general subject of ethics. (The first lecture is an informal talk, not all of the class being in attendance the first week.) Three or four to professional ethics and the dental and medical codes, and the remainder of the course to dental jurisprudence, and the dental laws, especially that of our own state. The only text-book or authority in dental jurisprudence that I know of is Rehfuss. Our faculty have not thought it necessary to require students to buy it. There is no work on ethics well enough suited to my purpose to be used as a text-book, and there is nothing that I am aware of in the literature of dentistry on professional ethics except the code, and the papers that have appeared from time to time in the journals. I have therefore prepared a brief syllabus of my lectures which I have had printed and have required the students to purchase, as well as the dental and medical codes of ethics. I procured sufficient copies of the "Principles of Medical Ethics," published by the American Medical Association, and have had the dental code printed on pages the same size, with the edges gummed so that it can be pasted inside the cover of the medical ethics and have both codes conveniently in one pamphlet. The students have been required to purchase these and have been told to prepare to answer in their final examination any questions upon either code.

To present the general subject of ethics in three lectures seems almost ludicrous and is, of course, very unsatisfactory, but there is some reason to suppose that most of our students have never thought of the subject of morality in any theoretical or philosophical way, and I have believed it worth while to discuss briefly its fundamental problem, the end or object of life, the highest or ultimate good, and a few of the more important virtues and duties by which that end is to be realized. I have used this statement, "The welfare of an individual, as well as of society, consists in the perfect development and exercise of life." Pleasure is the normal and usual accompaniment and reward of harmonious and perfect development and right activity of body or mind. In other words, the ideal of good has two elements, worth of welfare, and happiness. The discussion is from the general standpoint of evolution, suggesting that the ideal of good rises to higher levels with the enlargement or development of life and activity both in the individual and the race, suggesting also that the fact or possibility of evolution necessarily carries with it the possibility of degeneracy, the sad results of which are too

apparent in human lives to be overlooked or mistaken. Later on the suggestion is made that this teleological or scientific statement corresponds closely to the theological one, "The chief end of man is to glorify God and to enjoy Him forever," for man glorifies God and enjoys God in proportion to the harmonious perfection of his development and the right exercise of his powers. The obvious fact that welfare cannot possibly be accomplished by each individual for himself alone, but requires co-operation and service by each for the good of others illustrates the scientific truth that evolution has not resulted solely from an individual struggle for existence and the "survival of the fittest" as some have seemed to suppose, but the "struggle for the lives of others" begins very low down in the scale of conscious life and runs parallel with the struggle for individual life through the whole ascending scale of development, the highest expression of both being found in the New Testament summary of the second table of the Decalogue, "Thou shalt love thy neighbor as thyself," which thus appears to be as strictly scientific as it is Christian. It seems reasonable to hope and expect that the laws and processes of moral and social evolution may gradually become understood by men so that human intelligence may co-operate with natural laws, in other words, that men may be found at last working together with God and so the process of development in human life and society be greatly hastened. Very much in this department of ethics is wholly untouched. Paulsen has chapters on "Teleological and formalistic conceptions of good and bad," "The evil, the bad, and theodicy," "Duty and conscience," "Egoism and altruism," "Virtue and happiness," "The relation of morality to religion" and "The freedom of will." Paulsen's definition of freedom of will is so sensible that I quote it. "The freedom of man means the control of the spirit, the slavery of man means the rule of animal desires." "Freedom of will means the faculty to determine one's life independently of sensuous impulses and inclinations, by reason and conscience, according to purposes and laws; and that man has such a faculty, that this really constitutes the very essence of man, no one has ever doubted." This I have followed by some illustrations of the proposition that freedom is conditioned upon obedience to law and that transgressions of laws, either physical, moral or spiritual, diminishes freedom and tends to bring man into bondage.

Ethics has a double function; to discover the right object of life, and to point out the way of realizing it. The latter part is comprised in the doctrines of duties and of virtues, which are different modes of presenting the same subject matter. The former gives a system of rules or laws to guide right conduct, the doctrine of virtues describes the system of powers by which this end is realized. Virtues are defined as "Habits of the will and modes of conduct which tend to promote the welfare of individual and social life." They are founded on natural impulses, which are fashioned into virtues by the reason, first, during childhood, by the reason of others, which should result in *habits* of virtue. Vices are abnormally developed natural impulses, not properly controlled by the will, for vice always indicates a lack of will power

or the enslavement of the will. Virtues and duties are classified in two groups, individualistic virtues and duties, the fundamental form of which is self-control, and social virtues and duties, the fundamental form of which is benevolence. Self-control is very briefly discussed with reference to temperance, courage (independence, perseverance, patience) and calmness or equanimity. As respects the bodily life, in impulses or desire for nourishment, clothing, houses, play and work. As respects the economic life, the following of some useful calling, avoidance of avarice or prodigality, etc. As respects spiritual life and culture, the knowledge of truth and the comprehension and enjoyment of the beautiful, and honor and the love of honor. Social virtues, founded on sympathy, compassion and benevolence are justice, the passive form of benevolence, and love of neighbor, its active form, and veracity. The latter is perhaps equally an individual and social virtue. In fact, all virtues have both personal and social value.

The Bodily Life.

"The function of the body is to serve as the organ and symbol of the soul." "Everybody agrees that the body ought to be the servant of the soul. A good servant is one who accomplishes and endures much and demands little." "The rule of duty: Educate the body so that it may appear in this visible world as the pleasing expression of the invisible beauty of the soul."

The economic life and the institutions of labor and property which are its foundation, furnish occasion to say something about useful and injurious employments and the distinction between legitimate business and speculation and gambling.

After all these matters have been considered, even in the briefest manner, but little of the allotted time remains in which to say something of spiritual life and culture, which means, for the individual, the development of the intellect that he may know the truth, and of the senses and imagination that he may comprehend and enjoy the beautiful. Knowledge has a double function, to increase our practical efficiency in the particular calling or employment in which we are engaged, and our theoretical insight into the nature of things in general, in other words, understanding the world from our position in life. Knowledge which an individual cannot utilize in either of these ways is useless or worse. To know too much for his capacity makes a man, not wiser, but more stupid. (Ignorance is lack of knowledge, stupidity is lack of judgment.)

Professional Ethics.

There is a great abundance of materials, an embarrassment of riches, out of which to prepare the lectures on general ethics, but the reverse is true of professional ethics. The writings I have been able to find are not great in amount, and are very unsatisfactory. I have therefore been obliged to evolve more of it from "my inner consciousness," and I will welcome, from any of you, suggestions or information that may enable me to strengthen or enlarge the presentation of

it. The interests intrusted to professional men are more important and the consequences of incompetence, carelessness, or dishonesty more injurious, than is usually the case in most other employments. It is proper, therefore, that the community should expect, and the professions should seek to maintain in their ranks, a higher standard of fitness and training, a better education, greater general intelligence, and above all a higher standard of moral excellence and more scrupulous conscientiousness than is expected or exacted from other classes. Two or three important differences between the professions and other employments constitute the reason for this higher standard of morality. In business people are expected to meet on terms of practical equality, each comprehending the transaction from his standpoint and able and responsible to protect his own interests. Of course this is not always exactly true, and in business a man does not cease to be "his brother's keeper." The fundamental idea of all legitimate business is that the ordinary transactions are expected to result in benefit to all the parties interested, but beyond this general rightness it is not often possible for the business man to go, and it is customary and necessary to leave each party to business transactions free to judge for himself if the transactions are likely to benefit him. On the contrary, the professional man and his patient or client do not meet on equal terms, but it is distinctly understood that very important interests and welfare are confided to the professional man, the party being comparatively helpless and unable to judge if the measures adopted are such as will best serve his needs. The duty of a professional man is therefore of the nature of a *trust* committed to him by his patrons, who are dependent for the proper fulfillment of it upon his personal honor and faithfulness as well as his knowledge and skill. It is always needful for the professional man to consider carefully and primarily his patient's or client's interests as well as his own. It is true that a profession is also a business, the word business having a larger application than profession. Every profession is a business, but many kinds of business are not professions. Thus we have a professional business, a mercantile business, a publishing business, a manufacturing business, etc. The business transaction of a professional man is the exchange of some definite service or skill for some definite sum of money, but this business ought always to be subjected to the restraints and limitations imposed by his professional character and professional duty. In most business transactions the matters of chief consequence are the *things* or *commodities* bought and sold, and personal services of buyer or seller are not usually a *very* important element of the transaction. We care more to buy the thing we want than to buy it of some particular salesman, and more to get the right price than to sell to any particular person, the personal services of the salesman being of less consequence than the amount and quality of the things sold. In the professions, however (at least those under our present consideration), the chief importance attaches to the personal services rendered on the one hand and some personal need, whatever it may be, on the other hand.

We may now, with the help of the Century Dictionary, attempt a

definition of the word *profession*. I have been somewhat surprised at the vagueness or indefiniteness of some of the attempted definitions in essays and journal articles upon professional ethics. For instance, Dr. Safford G. Perry, of New York, in an elaborate essay read before one of the societies, asked the question, "What is a profession?" and gave this answer, "It is an aggregation of men who have received a special training to do special work; nothing more and nothing less." It will be perceived at once that this definition would make professional people of almost the entire population who earn their livelihood, the only exceptions being what we call unskilled labor. The definition of the Century Dictionary seems to me a very satisfactory one. "The calling or occupation which one professes to understand or follow; vocation; specifically, a vocation in which a professed knowledge of some department of science or learning is used by its practical application to affairs of others, either in advising, guiding or teaching them, or in serving their interests or welfare in the practice of an art founded on it. Formerly theology, law and medicine were specifically known as *the professions*; but, as the applications of science and learning are extended to other departments of affairs, other vocations also receive the name. The word implies professed attainments in special knowledge, as distinguished from mere skill; a practice dealing with affairs as distinguished from mere study or investigation, and an application of such knowledge to uses for others as a vocation, as distinguished from its pursuit for one's own purposes.

"In professions strictly so called a preliminary examination as to qualifications is usually demanded by law or usage, and a license or other official authority founded thereon is required."

This definition is broad enough to include such professional people as pharmacists, chemists, architects, civil and mechanical engineers, etc., whose employment relates to material things, and does not bring them into direct contact with the persons whose needs they supply. Perhaps the moral standards of these professions are upon a somewhat lower level and a little less exacting than those which require a personal acquaintance and a direct application of knowledge and skill to personal needs, as in the practice of dentistry, medicine, law, the Christian ministry, and the professions of teaching and journalism. We are less concerned with nice discriminations of this sort than with the broader generalizations between the professions and the trades and business, and our principal object is to awaken in the minds of students an adequate conception of the very serious obligations and duties to be undertaken in the practice of our own profession and the high level of moral quality that is indispensable to their proper fulfilment. It is only gradually and with difficulty that their moral sense can be awakened and lifted up above the level of the selfishness and greed which are too often observed and expected in the conduct of business and the trades. Of course, selfishness and greed are reprehensible in any occupation or circumstances, but in the practice of a profession they are abominable.

It is of the utmost importance that every influence in the school,

from the highest to the lowest of its professors and demonstrators, from the first letter in the preliminary correspondence to the last word of graduating exercises, by precept and example, by the treatment of students, by the management of its clinic, and by the conduct of its business affairs, should prove a moral tonic to every one of its students and keep them in an atmosphere of professional and business integrity, honor and sincerity. The conduct of a dental school is a profession, or rather it is a professional business, as truly as the practice of dentistry itself. Its moral obligations and standards should be upon the professional rather than the business basis in everything that relates to its students, to its patients in the infirmary, to its teachers and demonstrators, to other dental schools, and to the public that is to be served by its graduates. It can descend to a purely business basis only when it comes to its dealings with supply houses, mechanics and laborers. This moral power and influence of a school is determined wholly by the personal character and conduct of the men who are carrying it on, and of such officers of the university as have influence in shaping its policy. The most of the students understand each one of us with approximate correctness, and none of the professions or boasting, or even advise, of opening nights and commencement days will have the slightest influence over them except as it corresponds with their observations and opinions of our performances.

The differences between the practice of a profession and the conduct of a pure business, especially the fact that personal honor and faithfulness joined to knowledge or skill are engaged for the supply of important personal needs, are the chief reasons for the attitude of the profession in respect to advertising. A man may advertise *things* with entire freedom if he does not misrepresent them, but there is almost universal opinion that the paid advertisement of personal qualifications and character is improper, in bad taste, and not consistent with personal self-respect or professional dignity. A man may advertise his professional occupation and the location of his office, but scarcely more. So deeply rooted and universal among professional men is the conviction that public advertising of the commercial sort is inconsistent with professional self-respect, that nothing else will so quickly and certainly cause a man to be ostracised by his professional associates and cut off from all professional societies. Moreover, the advertisements themselves are so commonly untruthful or misleading, and the practice they represent so often incompetent and unscrupulous, that advertising has come to be looked upon as the badge of quackery by the community as well by the profession. Therefore, while it may attract a certain class of patients, it is equally effective to repel a better class.

The details of duties and treatment of patients, and of other practitioners, occupies some time in the course, but need not be repeated here, even if there were time. A few words are given to the obligations of authorship and the ownership of papers read before societies, and the duty of giving proper credit for ideas or words quoted from others. A few words also about duty to the profession in acknowledgement of the

debt we owe to the fathers for the body of knowledge and practice which we have received from them ready for our hands to use.

I shall not weary you with much more than a table of contents of the lectures on dental jurisprudence. The Illinois law is carefully explained and especially the requirements for becoming a legal practitioner here, then dental witnesses and the difference between common and expert witnesses, and especially the importance of dental experts in some cases for the identification of the dead (sometimes the living). The legal protection afforded by the degree of D.D.S. and the state license, the extent and limitations of practice and the right to give medicines systematically and to administer anaesthetics. A discussion of malpractice and the rules for estimating damages when proven. The liability for infection from unclean instruments. Something about contracts, express or implied, of compensation for services, and the right to charge for loss of time by missed appointments. The liability of a third party for services performed by request. The liability of minors and their parents or guardians. The book accounts of dentists and the collection of debts, and something about partnerships and the liability for the purchase of goods by an assistant. The subject of patents might come under either ethics or jurisprudence. I have not taken it up to any great extent. It is a very knotty problem.

I will not discuss the question whether a dentist can teach dental jurisprudence as well as a lawyer. The latter would have some manifest advantages, especially if his practice had given him special experience in medical or dental cases.

I hope you will agree with me that some such course of lectures on professional ethics as I have briefly outlined will give average students a better preparation than they would otherwise have to respond willingly to the ethical standards adopted by dental societies and everywhere recognized as required by a *reputable* practice. In the societies to which I belong it is customary to have the dental code of ethics printed upon the back of the application for membership, and it is the duty of the board of censors or the committee on membership to ascertain that the applicant has read it and signed his name to it before his application is approved.

The practice of dentistry is to so great an extent mechanical, it is so much easier than in the practice of law or medicine to carry on the routine of daily work without any very frequent or thorough reference to books for the study of cases, and the practice is so general to charge for operations by the hour as plumbers and other mechanics do, that dentists are much more likely than lawyers or physicians to fail to apprehend or live up to the true ideals of a professional life. Too many dentists are little better than artisans or skilled mechanics in their ideals or in the way they think about themselves and act with their patients. Unless he schools make more general and systematic efforts than they have ever done hitherto there is more danger than many of you suppose

that the final place and rating of dentistry may be among the skilled workmen rather than among the professions.

What would you think of a surgeon who charged by the hour for operations for appendicitis, or for curetting a nose or enucleating an eye, or even for a house visit or an office consultation?

Discussion.

**Dr. Max M. Eble,
Louisville, Ky.**

Those appointed to teach some special branches in their anxiety to do it well, often succeed in overdoing it. If in my remarks you find this fault do not content yourselves by throwing bouquets at

the good points (if there be any) and keeping silent when you see room for improvement, for as I understand it this is not a mutual admiration society, but in every sense a school of instruction. That no other subject in the dental curriculum tends so much toward elevating our calling to the dignity of a profession than a proper conception of the code of ethics is my humble opinion. While, as our essayist says, only eight schools announce formal lectures on ethics and jurisprudence, we also know that every school in the land believes firmly in and devotes some but not enough time, and gives not enough prominence to so important a subject. What is everybody's business is nobody's business. How many students, unless they are compelled to, ever read the code of ethics? Last year, in a class of sixty-five, nine only had read it, and they had done so why? Because they saw by the bulletin that the next lecture by your humble servant would be on that subject. While it is true that you can teach by precept and example, who would think of raising a child on those lines or educating a student by that method only? Give me a child from the fourth to the seventh year, and the devil himself will not be able to do much with it the balance of its days, was said by one of our most pious saints. Many of the young men who enter our colleges have been engaged in commercial pursuit, and those who have not are born with that instinct and believe that competition is the life of trade. Not so much for excellence, as for what they can make out of it. Have you ever asked why most students wanted to become dentists? Principally because they think it is an easy vocation where the profits, considering the amount of capital invested, are large. Ask the student in the infirmary what he thinks when he puts in his first amalgam filling, which costs about one cent, and for which the college gets the munificent sum of ten cents, what he thinks, and he will say nine hundred per cent. profit. Now the time to eradicate this idea is right at the beginning of the freshman year, say in November, by giving lectures on ethics. Until year before last my lectures were confined to the senior students of the second semester. Last year we included the juniors, and this year we expect to begin on the freshmen. For, as said before, erroneous ideas should be eradicated right at the beginning. It is not my good fortune to know of a work on ethics, and the many good articles that we see from time to time in our dental journals, while valuable to the

average practitioner, are generally too far advanced for the student. My plan of teaching has been as follows: To be sure that the student would at least hear the code of ethics for once in his life, I read Section 1, then begin by analyzing that section sentence by sentence, or often only part of a sentence, and in order to make it as impressive as possible, and when apropos, relate to them a circumstance in my own practice bearing on each particular point. Another method of impressing it is to state that questions will be put on this subject, and as they are all easy we expect excellent answers in our final examination. Some say quacks are born not made, but I firmly believe many are quacks because they were never shown the difference between one who is a dentist by trade, and the one who is a dentist by profession. While it is true that the practice of dentistry is to a great extent mechanical and we can carry on our daily routine work without such frequent and fair reference to books, I see no reason why there should be objection to charging for our services by the hour. Does not the physician who examines for a certain life insurance company for, say \$10,000 per annum, charge by the hour? Does not the attorney who acts as counsel for a railroad at given figures, work according to time? Is either of them the less professional on account of that? While there are many operations for which we charge not less than a certain fee and as much more as we can get, such work as treating teeth, abscesses and pyorrhea, I see of no other means at arriving at a satisfactory result. A physician will charge so much for an office consultation and generally twice as much for a visit to your residence, why the difference? Just merely a matter of time consumed. No matter whether you charge \$10 for an amalgam filling, or only \$5, time is the prime factor. Now as to charging for lost time, if there is any one thing more conducive to bring your patient to the office at the appointed hour, please tell me what it is. Then again, are you not suffering actual loss of capital when an appointment is unkept, and who, if not the patient, should pay for your loss? Have I ever had anybody complain when charged for lost time? To be sure I have, but I have yet to find the first one, when I explained matters, that did not say my position was correct. As my chair does not include jurisprudence, I am not in a position to discuss or give any special method of teaching the same, but concur in many of the ideas of our essayist, though the teaching of the dental law of any special state would be of importance to only a few of your students, and it is ever important to bring only those things before the class which will be beneficial to all. Then again as ignorance of the law excuses no one they will not be apt to be caught napping. For many valuable points that I have learned from the essayist's most able paper, and for the honor that has been conferred by placing me on your programme, I am deeply grateful.

**Dr. M. C. Marshall,
St. Louis, Mo.**

The paper presented by the essayist is so full and complete that any discussion, from my viewpoint, is comprised in a hearty commendation of the logical and thorough elaboration of the subject.

As there are quite a number of colleges, however (the Marion Sims

among the number), that have no special chair on ethics, there might be a question as to its necessity. If taught, for instance, by a special course of lectures, it might seem a thing apart, while on the other hand if each teacher, as occasion presents, and they constantly are presented, should keep his subject permeated with the highest professional ideals, the student becomes saturated in every step of his education with ethical thought and feeling, and of necessity must carry into his professional life a sense of moral obligation. On the other hand, if there is a special chair on ethics, might it not tend to a dismissal of the subject by the other members of the faculty, and if so would not the idea of it being a thing apart, be accentuated, and the subject lose some of the vast importance that should be attached to it? If the author would give us an opportunity to purchase the syllabus he has prepared, I am satisfied his well digested thought would be eagerly sought by all conscientious teachers; we need it, and the profession at large needs it. I regard the following quotation from the paper of the utmost importance, to wit: "Unless the schools make more general and systematic efforts than they have heretofore there is more danger than many of you suppose that the final place and rating of dentistry may be among the skilled workmen, rather than among the professions." In this day of frenzied finance the above is a warning that is easily minimized. We are sowing seed. Some will fall upon good ground and we will be able to see fine results; some will fall among tares, and the unfortunate environment will blight our best efforts. Yet we must do the work as thoroughly as possible for we

"Sow a thought and reap an act,
Sow an act and reap a habit,
Sow a habit and reap a character,
Sow a character and reap a destiny."

I want to congratulate the essayist on his
Dr. J. H. Kennerley, paper, and also to make a correction. I under-
St. Louis, Mo. stood him to say that the Dental Department of
the Washington University did not teach juris-

prudence. We have had a chair of jurisprudence for a great many years. Dr. Noyes evidently overlooked it. While we never established a regular chair of ethics, yet we have fifteen men teaching ethics. There is not a teacher in the institution who loses an opportunity to imbue his classes with the necessity of ethics; not only in the senior year, but also in the freshman year. All our teachers are enthusiastic on this subject and they never fail to inculcate the principles of ethics into the students. While it might be well for us to have a separate chair to teach ethics, yet I am rather inclined to agree with Dr. Marshall that if we had such a chair the other teachers would fail to do the work they are now doing, and thus our classes would be deprived of much valuable advice that they receive from the time they enter the college. The time to begin teaching ethics is to teach the boy, no matter where he is. The sooner he learns it and makes it his code of living, the better his professional life will be.

**Dr. A. G. Friedrichs,
New Orleans, La.**

I think a great deal can be done in this respect by the way we manage our clinics. More harm has come to the profession by the way most college clinics are managed than by any other one factor. These clinics should be conducted on the same plan as we conduct our private practice. It is a bad thing to advertise the clinics. Everything done in the clinic should be ethical, and I have always attempted to carry that out. Of course, it is desirable to have a chair teaching ethics, but there is not a man connected with our school who does not inculcate these principles to the best of his ability. We begin with the freshmen and we continue to tell them about it until they graduate. I show them the necessity for being ethical, and what comes of being unethical. Teach them to be ethical and to retain their professional self-respect. If you succeed in doing that while they are in college you will have fewer unethical practitioners of dentistry.

**Dr. H. A. Smith,
Cincinnati, O.**

This paper carries me back to the time when the code of ethics was adapted by the American Dental Association. It was presented by Geo. Watt, M.D., D.D.S. The code was adopted from

the medical code and it was done exceedingly well. Dr. McQuinlan, of Philadelphia, was not in favor of it, because, he said, a gentleman does not need any restraint. If he is not a gentleman no code on earth will restrain him from doing what he pleases. But the code was adopted almost unanimously. When the new organization, the National Dental Association came about, a committee was appointed to revise the code, but no change was made, except in the article on consultations, which is almost new matter, and is one of the important sections in the code. The amount of time to devote to the teaching of ethics is an open question. It does not require a large number of lectures to elucidate the doctrine contained in the code; five to ten would be sufficient, and these should be given to the senior class. If an impression is made at all, let it be made at the last. Dr. Noyes' outline of his lectures on jurisprudence is practically the same as that given in Rehfuss' Dental Jurisprudence. If that book could be placed in the hands of every dental student it would be a good thing. But it needs a thorough revision, and all that part relating to the state dental laws left out. Another excellent book is McClellan's civil malpractice, written by a physician-lawyer. The principles of dental jurisprudence are not very extensive. They are easily comprehended and can be given in a few lectures.

**Dr. S. H. Guilford,
Philadelphia, Pa.**

We have a jurisprudence course in our school. I question very much whether, as the course is now constituted, we have very much time to devote to the subject of ethics or jurisprudence. When that is taught from a regular chair, we are apt to occupy too much time that is needed for other subjects. I believe in a certain amount of it, but we ought not to give a great deal of time to these subjects. We have

an eminent lawyer deliver three or four lectures on dental jurisprudence and they are given in the evening. They cover the usual ground, questions of malpractice, identification of the dead, contracts, liabilities, accounts, etc., are taken up in regular order and in an entertaining way. We have no set lectures on ethics, but every teacher in the school makes it a point to inculcate the principles of ethics in his lectures all the way through. Lectures on ethics may become very dry, if carried too far. Much depends on the character and practice of the men teaching. It is a question of our daily life and example to those young men, and an occasional word or explanation or invitation to come to our office and see how we conduct our practice is worth more than a great deal of didactic teaching. I deliver a few lectures every winter on dental malpractice and ethics, taking in a great many subjects, such as the beginning of practice, signs, treatment of fellow practitioners, keeping accounts, collecting bills, saving and investing money and all that. When condensed and put in popular form it is better received and makes a more lasting impression. There is no doubt in my mind that the dental parlor is the natural outgrowth of the college clinic. It is in college that students see many working at the chairs, doing much work for a small fee which amounts to a great deal in the aggregate, and they conceive the idea that if this can be done there the same thing can be done on the outside. Yet with all that we cannot dispense with the college clinics, for they are as necessary to the dental student as the hospital clinic is to the medical student.

Judging from the paper and the arguments presented, it seems to me that instead of advancing we are retrograding. Twenty years ago it did not require the preliminary education to gain entrance

Dr. W. M. Bartlett,

St. Louis, Mo.

into a dental college that it does to-day. We never heard these subjects discussed before bodies of this kind. To-day the majority of schools require two years of high school study, and some require graduation from the high school, to place a man in the position to discriminate between right and wrong. The chair of ethics really makes an effort to teach the educated student to discriminate between right and wrong. What is dental ethics? It is the man himself. If a child has an honorable father, the chances are that he will himself be an honorable man when he grows up. In his college life what are his examples for conduct? His professors, the conduct of the college. If the man who stands on the rostrum conducts himself in a professional way he is an inspiring example to his students. He does not have to tell them about the code of ethics. A student who sees his college advertise for gain, naturally, when he graduates and receives no patronage, will wonder why he cannot do the same thing. I have more respect for the man who openly advertises that he fills teeth for twenty-five cents than for him who makes use of the papers for personal aggrandizement, or for those who blackguard their fellow practitioners. Of the three, the advertising man is the most honorable because he lives up to his principles.

I think that Dr. Noyes' paper is not second
Dr. A. W. Thornton, to anything that will be discussed at this meeting.

Chatham, Can. I was particularly impressed with what Dr. Fried-
richs said that students sometimes learn unethical

ways in college. I wonder if there always exists among the professors in a college that harmony that there should be. How long does it take students to discover the fact that there is a lack of harmony? That one professor is, metaphorically speaking, cutting the other professors' throats. And they go out and do what their professors did in college. The fact of the matter is that mind is not the standard. There is an answer to that question, What is the chief end of man? It is the pursuit of happiness, and the standard in this country is the standard the world over. Men are rated by the gold standard. The man who makes money is the man who is looked up to. And that is the reason why men who recognize that fact run dental parlors. That happiness is to be obtained along the line of making money, regardless of how it is made. If they get enough of it they will have recognition. A short time ago, in one of our eastern states, a dentist was refused admission to a club because he was a dentist. I am glad I am a dentist; glad that I can associate with the men who surround me to-night, but when I walk along the street and see a big gold tooth hanging before some dentist's office I pass with my head down. We must be honest in our colleges and teach our students that the attainment of wealth is not the chief end in life, but to be men among men.

Dr. Noyes

It would be lamentable, I am quite ready to admit, if the teaching of ethics as I suggested, were to diminish or prevent, or in any way curtail the expression of ethical principles and ideas by every

professor in the school. Such a course in ethics is not intended to displace that line of teaching. But, gentlemen, is there in one of your schools a chair from which the foundation on which professional ethics stands is elucidated so that the student can comprehend it better than he can by listening to the desultory method of teaching by everybody? Do they comprehend why it is that it is considered bad to be a quack advertiser? You must give men a better basis for ethical conduct than mere business policy, or the custom and requirement of the profession, if you want to stand on sure ground. The great effort I have made in this course of ethics is to put such a solid foundation under the feet of my students that they may see that a professional occupation is different from that of the merchant or mechanic, and that the moral obligations are also different. Too much cannot be said in regard to the importance of conducting college clinics so as to avoid creating erroneous impressions on our students. A short time ago a student of mine handed me an advertisement clipped from the paper. The advertisement was so worded that one might infer that not only the treatments in the infirmary were free, but also the fillings and crowns and plates. It would not deceive anyone well acquainted with a college clinic, but I told my

class it was very objectionable because of its apparent intention to mislead. The dental college is a public institution, and the clinic is conducted for educational purposes primarily, and its rights and privileges are somewhat different from those pertaining to private practice, but it must be administered with the greatest care in respect to its ethical aspects and influence. No plan has yet been discovered by which colleges can avoid creating some quack dentists and quack physicians, and the opportunity to hang the head is just as good for the physician passing along the street as it is for the dentist, and this in spite of the fact that the medical code of ethics has been the recognized standard for professional conduct for a hundred years. The original code of ethics was written in a series of letters by some physician in England to his son who was about to graduate, and the phraseology of these letters has been preserved in part to the present day. The code in use up to last year was adopted about fifty years ago when the American Medical Association organized, and Dr. N. S. Davis, of Chicago, was a member of the committee which drafted it. Some of the gentlemen think that we cannot afford to give so much time to this subject. My course does not take a great amount of time, one lecture a week from the first of October until about the middle of January, eleven or twelve lectures and an examination. Any young man can become well acquainted with the dental and medical codes of ethics, and, with the aid of this greatly condensed syllabus, can learn the main points discussed in the course in a very few hours besides the lectures, and it does not seem to me too much time to give to so important a thing as the comprehension of the fundamental ideas and standards of professional ethics.

THE DOMINION DENTAL COUNCIL—WHAT IT MEANS TO THE PROVINCES, AND TO THE INDIVIDUAL DENTIST.

BY J. H. AYERS, CHARLOTTETOWN.

We are living in an age when progress is the password into all that is highest and best in, and worthy of, true life in the many and various vocations in which men everywhere are engaged. Christ's words, "Be ye therefore perfect," applies just as much to the man at the dental chair as to the man in the pulpit; just as much in a physical sense as in a moral sense; and as much in a mental as in a spiritual sense. The Great Teacher refers to nothing more nor less than progress in its highest and purest sense.

The time is coming, if not already here, when the world of thought and business will accept nothing in the shape of a human being who has not been thoroughly and equally trained, morally, mentally and physically for the calling or profession which he or she may choose. The world of commerce and trade, or of profession, in teaching, or banking, or mechanics, or what not, must henceforth have the very best that can be produced.

We, in the dental profession, should not and must not be one whit behind our brother professions, but rather well abreast in all that makes for true advancement and culture in all that the dental profession is bound up in, or is related to.

That the Dominion Dental Council has been organized, and is about entering upon active relations with the separate provinces, is a strong and most convincing evidence of progress in the dental profession of our fair dominion.

As you all know this Council is composed of representatives from each province, whose duty and interest it is, through their united counsel of wisdom and unselfish zeal, to bring the dental profession, generally, up to the highest and best standard of education in theory, in practice, and in ethics. The standards of both preliminary and professional education will have to come to a common level, but not through any system of retrogression, rather making the very best we now have in any one province the guide for those that are below. And even this will not satisfy the Council; for its aim will ever be the elevation of the best we have until there is none better existing.

The necessity of better standards of education will demand better legislation in those provinces which are lacking in this respect. We need not only have better and more efficient laws, but to have them workable and untrammelled from party pull and intrigue.

It will also mean to each province a better ethical education. This is, no doubt, very much needed among dentists in their relation to each other, but even more so in their relation to the public. We all know how easy it is to deceive our patients in regard to operations on their teeth. Possibly in half the operations we perform for our patients, we could so deceive them as to make ourselves morally guilty before God, and criminally guilty before man, if circumstances so arranged themselves as to bring us where we could be condemned by the law. In a hundred different particulars might our professional ethics be reformed or improved, by being stimulated to such needful change by the Dominion Dental Council.

The greatest blessing that could possibly come to the public through the dental profession in this period of the world's history is an increased attention to the art of prevention of caries, etc. None of us would object to seeing less of the terrible ravages of decay in teeth, especially of those so young in life. Take, for instance, the six-year molar. In the majority of cases it decays almost as soon as erupted, and through ignorance on the part of parents and guardians as to whether they are temporary teeth or not, they are in a great many cases beyond the reach of restoration, when brought to the attention of the dentist. Through ignorance many young women and not a few young men have to suffer the insertion of artificial dentures before they are out of their teens. Such a condition of things is pitiable indeed, and distressing to most of us, I believe. Surely we need reform, and it is for the Dominion Dental Council to inaugurate such reform, so that ultimately appointments can be made for the examination of children's teeth in the Public Schools, and for the dissemination of the requisite knowledge among our patrons as will ultimately have the effect we desire.

What the Dominion Dental Council means to the separate provinces is largely what it means to the individual dentist, only in a more intensified and personal manner. The benefits that may come to the provinces through the deliberations of the Dominion Dental Council also come to the individual dentist, only in a more indirect way, yet none the less surely. First, it confers on him an honor, in that it gives him the privilege of Dominion registration, of course, under certain conditions. It is an honor which every dentist should feel extremely proud of, when we consider the extent, the immense undeveloped resources, the prosperity and growth of our country. Speaking prophetically, what teeming millions of people she will yet support, and should we not count it a great privilege to practice our profession in any one of the provinces of so great a country? The honor we in this enjoy is all the more appreciated when we realize what is required of us to secure such a relation to one another in Canadian dental life. It would also be a great honor, because of the fellowship, both mentally and socially, we would be privileged to enjoy.

The high educational standard, second to none in the dental world to-day, which the Dominion Dental Council from the first has adopted, is sufficient in itself to make all Canadian dentists hold up their heads with pride and wholesome self-esteem. And for those who shall yet enter upon the dental profession it will be a great blessing in disguise. The preparatory stage will be trying and difficult, but the after-life will be one of thanks that the past requirements were compulsory, and up to the highest standard in existence.

The Dominion Dental Council will, through the progressive measures it has adopted, arouse in each dentist a greater interest in the work of his profession. He will have higher ideals and seek to bring his work to compare favorably with any that can be produced anywhere. The actions of the Dominion Dental Council will henceforth press the individual dentist on to reform in spite of himself. In his own circle of practice he will be obliged to look not only to his own selfish welfare, but to the permanent welfare of his patients, as far as his operations affect them. To the individual practitioner no greater blessing could come than have to row against wind and tide, so to speak. Our retrogression is sure to come when everything always goes smoothly and comfortably.

In closing this paper, which I feel is already an eight-minute one, my regret is that there are some things of importance which I have not referred to, and that my discussion of so worthy a subject is not what it demands, yet I hope and trust that what I have given expression to will lead to a discussion which will be more helpful than even the paper itself.

IMMEDIATE PULP EXTIRPATION.

By F. W. BARBOUR, FREDERICTON, N.B.

The value of the rapid method of pulp extirpation has been impressed upon me more and more forcibly during succeeding years past. I had little expectation of finding it such a marvellous solution of an annoying question, when it was first presented to my attention about seven years ago. The encouragement received at a small dental meeting, almost that long ago, to put it to trial, brought such results that that gathering now looms large and important in my memory.

It is probable that few, if any, present have not availed themselves of such a method, and I cannot hope to lead others, as I was then led, to take the first steps. It is not improbable, how-

ever, that there are at least a fair number who, as yet, only resort to it in a limited degree, and in the simpler, more accessible cavities.

I have wondered if many have found the use of arsenious acid in any form so unsatisfactory, taken as a whole, as I have done. Conversations and reports lead me to believe that it has been no unusual thing to have results which indicate that much is to be desired in arsenic as a pulp devitalizer.

It is not my wish to worry you with the story of the troubles which had been encountered in the efforts to extirpate pulps in the years previous to the introduction of cocaine into the field. Undoubtedly memory will supply to many a similar review to that which I would give. Suffice it to say, that in spite of the use of arsenic in probably all its different modes of application, whether pure or in combination, in direct contact with or remote from pulp; covered by wax, temporary stopping or cement; the results were equally uncertain, pulp pains frequent, and devitalization sometimes delayed into weeks and even months.

All the above is by the way and for the sake of contrast, but at the same time it is not desired to convey the impression that the pressure or immediate method has given absolutely perfect satisfaction in every case. By careful noting and tabulation it has been possible to prepare for your consideration figures and facts, from which you can form such conclusions as may seem right. In reference to such statements, I would like to impress the fact that nothing has been eliminated from the complete record given, and any cases which may have been other than successful are here for your consideration, as well as those which gave the best results. During late years cocaine pressure has gradually taken the place of arsenic, until during the past year the latter has been practically done away with, indeed entirely so since the beginning of the current year.

The record made up has, therefore, been for the period of one year, and also because the exact procedure now used began but little earlier than that time. During the year in which the immediate method has been utilized, there have been changes of usually slight character to determine that which was the most efficacious and adaptable.

The principal changes made were in the solvent that was used, ranging from common water, through carbolic acid, adrenalin, formalin and chloroform, sometimes with prepared solutions of different strengths, and again with the application of crystals followed by the liquid.

The most important change was when chloroform was the vehicle and, while this may not be original, with me it has been none the less valuable.

If it is remembered that chloroform is known to be about the most readily absorbed of all fluids, it is easy to believe that it will lend this advantage to the work of assimilation into the dental pulp.

A further advantage in its combination with cocaine is not only the greater surety of its absorption, but in the fact that what it does it does quickly. Usually one minute is sufficient to secure complete anesthesia, or at least to produce a partial effect, which will permit of deeper excavation and more accurate further applications. A point not to be forgotten is the antiseptic effect of chloroform which gives the assurance that nothing septic is being carried through the foramina during pressure. This with careful mechanical manipulation afterwards is the reason that in spite of immediate root filling, subsequent pericemental inflammation is either slight or entirely absent.

It is found also that hemorrhage is of shorter duration where chloroform is used, and is often entirely absent, the after results in either case being in no way different.

Having recognized the value of the cocaine-chloroform mixture, it may be of interest to you to hear somewhat particularly of the mode of application and some precautions necessary to be taken to ensure the most satisfactory results.

First, as to the mode of application. If possible isolate the tooth previously syringed, and its immediate associates, with the rubber dam.

Many cases have had to be done with only the napkin or cotton roll, and successfully, it being necessary, of course, to see that the application is carefully attended to.

To prepare the cavity it is necessary to remove all decay over the pulp exposure. While the fluid will pass to some degree through sound dentine over the pulp, it seems very reluctant to pass through decay, in fact little else than severe pain is effected in the trial, presumably, because of the pressure from the elastic carious matter.

It is an advantage apparently if the pulp has been slightly lacerated, but the benefit derived is not sufficient to justify an intentional rupture at the patient's expense. To apply the cocaine it has been found best to lift enough of the crystals to cover the exposure thickly, covering it with a piece of cotton rarely larger than a pin-head. Having ready a piece of red vulcanite as large and fairly the shape of the cavity, moisten the placed cotton with chloroform, and immediately cover with the vulcanite, quickly and accurately, adapting it to the walls of the cavity to prevent exudation or evaporation.

A piece of cotton is then used to cover the rubber, and upon this is applied pressure to carry liquid toward the pulp and to prevent leakage. Care should be taken to apply pressure gently at first and steadily increasing. The sudden pang of pain is evident, but quickly subsides if action is good. If pain does not begin to decrease materially in about five seconds, it is presumed that some disarrangement of inside cotton or some leakage has transpired, and it is well to at once renew and repeat.

Right here it may be said that it has been found that the

progress of the anesthetic has been found to be decidedly interfered with by any previous use of carbolic acid in the cavity, and especial care is now taken to use other than escharotics to keep the tooth comfortable until such time as opportunity can be found to devote the necessary time to the complete work. The fact that the tooth has been, or is aching, is not usually found to interfere with immediate anesthesia, and wherever time can be afforded delay is not desired, although it occasionally occurs that odontalgia of severer and long-continued form produces a congestion of the blood vessels of the pulp, apparently prohibiting access of any fluid under pressure. Surprisingly good results are often obtained in such a condition, through the use of a dressing of oil of cloves in the cavity for a day or two. It should be understood also that arsenic applied to the pulp almost surely prevents any satisfactory subsequent effort with cocaine. At the same time it is found that the effort to devitalize with arsenic, when cocaine pressure has failed, has always been fruitless. Whether this is because of the same condition which made the cocaine a failure, or because the pressure has produced the immunity, I find it hard to decide. As before mentioned, arsenical treatment is now only resorted to when it seems inevitable, and as a last hope.

While dwelling upon that which prevents cocaine absorption and anesthesia, we must not forget that there are a few, fortunately very few, who are immune apparently to any normal dosage of cocaine, and it is not surprising that some are found whose dental pulps, in spite of every apparent favorable condition, refuse to give up their sensitiveness, even after repeated applications of the obtundent. This immunity has been noticed as existing much more often than usual in the first molars of children from eight to fourteen years of age. Before coming to the conclusion that the effort to anesthetize, with the means which have been described, are unavailing, it has more than once been found possible to secure the desired effect by another means, and thus reduce the total of failures to a minimum.

The means referred to is the injection of a 10 per cent. aqueous solution of cocaine from a powerful hypodermic syringe into the pulp. The syringe point is encircled with red rubber, re-enforced with cotton, and as far as possible held so as to be water-tight. The tendency to jerking motion of the piston has to be overcome in order to lessen the pain sometimes caused.

In rounding out this description of pulp removal, it may be mentioned as my belief, that a great deal of the subsequent soreness sometimes attending the operation is caused by over-manipulation in removal, and thereby the introduction through broaches of bacterial infection through the dental foramen.

It is especially desirable to have the pulp extracted complete in one piece, and this is most surely by the use of as nearly new extractors as possible. The knowledge of this has resulted in

the use of ten such instruments, where one was formerly used for an equal amount of work.

If but one introduction of the broach will suffice, you may rest assured that the danger of subsequent soreness need not be seriously considered.

The question of root filling is not quite within the province of this paper, but to anticipate any query which may arise in your minds, I will say, that in canals from which it is plainly seen that there is absolutely sure removal, there is introduced a solution of gutta-percha in eucalyptus oil, followed by gutta-percha cones.

In cases where there may be a doubt about fragments being still in canal, it is preferable to fill with zodoformagen cement, mixed thin and carried to place upon a few fibres of cotton wrapped upon a fine, smooth broach.

This preparation has rendered me such excellent unfailing service during many years, that I am glad to give this additional commendation.

The figures which I give here only relate to the past twelve months, but in all the time that these various expedients have been utilized, I can remember no case where a filling has had to be removed from a tooth thus extirpated and filled.

What others of the fraternity may have had occasion to do is another story. If you can bear with me a few moments longer I will submit the results obtained. The total number of cases operated upon in the above way have been two hundred and ninety-two. Eleven of these were through the application of arsenic. Of the balance, nine have been in wisdom teeth, and twenty-five in second molars. The failures among these have been four in the case of arsenic, and five of cocaine; three of which were first molars. It may be interesting for you to hear the history of some of these cases.

Mrs. B., presented with aching lower molar, with small cavity situated at gum margin, lingual surface, exposing the anterior mesial pulp. Because of the position and size of cavity, and the apparent separation of this pulp from the pulp chamber, it was decided to attempt just the removal of that one branch. This was done satisfactorily without the rubber dam. The pain, however, continued, and two days later repeated attempts to extirpate the remainder of pulp only resulted in increase of pain. The immediate departure of the patient to the Pacific Coast prevented further help, except to make tooth comfortable. The sequel to the story is yet to be learned by me.

Master V. also had an aching tooth, an upper first molar, efforts to anesthetize the pulp of which only added to the severity of the pain, which finally became continuous, and only ceased on the extraction of the tooth.

For Miss E. an attempt was made to devitalize a lateral incisor with arsenic, because of her timidity, but after efforts

extending over a month, general anesthesia had to be resorted to for the pulp removal.

A case that has had an unusual history is that of Master S. No discomfort had been felt for some time, but cocaine had no effect, and rather produced an irritation, which increased, and made application and pressure very objectionable. Several days' waiting revealed a protrusion of the pulp into the cavity, daily growing larger, very sensitive to touch and exceedingly vascular. Escharotics were applied several times, and then the patient ceased his visits and the outcome is questionable.

I thank you for the hearing you have given me, and trust that the minuteness of description may not have tested too severely your patience.

A METHOD FOR UTILIZING THE BETTER QUALITIES OF AMALGAM AND GUTTA-PERCHA IN ONE FILLING.

BY W. C. GOWAN.

The following is a method which I devised some years ago of utilizing the better qualities of gutta-percha and amalgam by combining them as a filling suitable for certain cavities, which otherwise would present much difficulty. Desiring to be assured of the utility, durability and other advantages of this filling before recommending it, I have used it, and kept examples under observation for some years in the mouth. Persuaded as to its good qualities and success as a filling, I demonstrated the method of its insertion at the recent Maritime Convention at Halifax.

This filling is adapted to large distal cavities in cuspids and bicuspids, whose walls are too weak to permit gold filling, and in which amalgam, if used alone, would leak, and lend to the tooth an undesirable color.

Prepare the cavity as for any other filling, excepting that the margins do not need to be cut away so much as other fillings require. These large cavities do not need extension, so only the very frail, sharp edges, are to be trimmed so as to make a smooth margin, even where there is no dentine supporting the enamel.

Dry the cavity well and paint its whole surface with freshly-prepared white chloro-percha. Into this press enough warm gutta-percha (white vase-plate) to about half-fill the cavity, and before it cools press it with ball burnisher, so as to line all the walls of the cavity.

Mix the best quick-setting amalgam you can get; place a pellet in the cavity, and burnish it so as to cover the gutta-percha

completely. Heat in the flame a large burnisher, and apply to the amalgam in the cavity until you see evidence that the gutta-percha is softened, then quickly exchange the large burnisher for a small one; heat it and use so as to somewhat puncture the filling in several places. Resume the large burnisher and quickly pack the filling solid. If any gutta-percha be found to have spewed outward at the margins, trim it away by a rapid sweep of a hot burnisher, then add enough amalgam to fill the cavity, burnishing well and complete the contour, and finish off the filling with burnishers.

Be sure to have enough amalgam over the gutta-percha to prevent the latter from touching the hot burnisher, else it will make trouble for you. Gutta-percha is at its best for insertion when the first blisters due to heat appear. In this state it is best conveyed to the cavity by the clean ball burnisher (not heated) with which it is packed. The cavity must be dry at the time filling is begun, and until amalgam is attached to gutta-percha by heat. After cavity is full saliva does no harm while finishing. In most cases no rubber dam is necessary; a roll and a napkin being more easily applied and more agreeable to the patient.

A cavity thus filled will not leak, for gutta-percha inserted in this way is firmly adherent to the walls, and in the most intimate relation with every surface irregularity. It lends permanently a most acceptable color to the tooth. Where no dentine remains to support a part of the labial or buccal enamel gutta-percha supplies its place in a most satisfactory way.

The amalgam is apparently uninjured by the application of heat enough to establish a firm adhesion of the gutta-percha to it; and no pain of any severity is felt by the patient.

Gutta-percha has many advantages over cement as an adhesive and protecting medium between amalgam and cavity wall. It is much cleaner and easier of application. It is whiter, a better non-conductor, and it is not friable. One application of force will not ruin it. It is proof against the solvent action of anything surrounding it in the mouth, so that if the amalgam, by change of form, admit moisture, it still is safe.

When I say that a tooth thus filled will not leak I speak both from observation of the fact in the mouth, and from conviction founded on the known behavior of gutta-percha.

That the gutta-percha is adherent to the cavity as well as to the amalgam may be seen by experiment on extracted teeth. Fill them as here directed, and a few days afterwards remove the fillings by force. Note the strength of the adhesion mentioned.

Cuspid and sometimes bicuspid teeth, which otherwise could be restored only by crowning, may be by this filling repaired at less expense, and with better promise of health in both tooth and surrounding tissue. A pulpless cuspid tooth with mesial and distal cavities united at pulp chamber can be restored to fairly respectable appearance and full utility, for I have done it.

The reasons for using anything else but gutta-percha as a filling are that its surface is not hard enough to retain a polished and cleanly appearance, nor to resist wear in positions exposed to attrition. Where unprotected it will yield to pressure, so that used alone it is not fit for contour fillings.

These physical characteristics do not, however, contraindicate its use alone in approximal cavities in children's permanent incisors and cuspids, and in many labial and buccal cavities in teeth of children or adults. I find it for these uses the best available material. It is very easily manipulated, and better still, it requires only such cavity preparation as may be secured with the minimum of pain. It is, moreover, the most reliable material we use to prevent recurrence of decay. Out of more than a thousand gutta-percha fillings inserted by myself I have yet to see one with recurrent decay beside it. This is more than I can say of any other material.

The addition of amalgam in the manner described, is for the purpose of providing a hard rigid surface to withstand pressure and attrition, and to conserve cleanliness.

Where any amalgam filling is exposed to view finish it completely before it sets by wiping and burnishing, and do not afterwards polish it with anything. If you would have amalgam look its best pay strict attention to this. Good amalgam finished to proper contour while setting, and lightly burnished to a shine for the last touch, will, when it sets, have a fine frosted appearance by no means ugly. But if you polish it with grits, disks, strips or the like, it will, upon contact with food, turn dark and conspicuously ugly in appearance. This fact is demonstrated by trial and observation.

With my best compliments to the dental profession, and feelings of gratitude toward my professional brethren for favors past, I offer this small contribution to the sum of our working knowledge, in the hope that it may be of use to those who are not provided with better means for the salvation of ruin-threatened tooth-crowns.

CAVITY PREPARATION.

BY JAS. M. MAGEE, ST. JOHN, N.B.

I seem to see many of the faces of those who read this title on the programme, and can imagine the comment: "This old theme has been harped upon so many times that the essayist would have done better had he devoted his time to some more live topic. We know how to prepare cavities; why doesn't he give us something new?"

You do not know how to prepare cavities. If you did you

would have less failures; fewer cases where caries compelled the removal of your recently inserted filling, if indeed the plug itself had not already become loosened. Recently inserted may mean any period up to three or four years. No filling which is supposed to be permanent should ever loosen or have to be removed owing to caries in that time.

When I say you do not know how to prepare cavities, I want to be understood as literally as possible. There is nothing more pleasing to the eye of the true dentist than a perfect set of teeth, kept perfectly clean. Anything done by the dentist which conveys the impression to the ordinary observer that the teeth are perfect is good dentistry. The ability to hide a filling is good dentistry, and the ability to fill a cavity, which is exposed to view so that the filling when finished does not attract attention, is good dentistry. Therefore, it should be the aim of the dentist to have every cavity so prepared that as much of the tooth as possible may catch the eye. Instead of this being the case, how many of us will take the pains to open an approximal cavity in an upper incisor from the back rather than from the front? We do not know how to prepare cavities in incisors if we open from the front. I shall leave out the question of porcelain inlays as the preparation of cavities, for their insertion is so very different from that for metal plugs that the two cannot be considered together. I refer entirely to cavities in which we insert permanent fillings.

A properly prepared cavity must have clean-cut enamel margins; cut with a sharp chisel, either with rectangular lines or graceful curves, as the case indicates, and not file-cut margins because a file leaves a jagged edge. It must also have all the carious dentine removed. I am not an extremist in so far as the question of cavity preparation deals with "extension for prevention," yet I will say that if more extension for prevention were practiced there would be fewer fillings fail from so-called recurrent caries. The advocates of extension for prevention do not claim that a perfectly tight and saving filling cannot be made in a tooth unless the cavity is extended labially and lingually for the exposure of so many centimeters of the finished filling, but they do claim that because of the fact that strict cleanliness does not seem possible in the great majority of mouths, it is necessary to remove the tooth tissue and replace it with metal in those regions where caries is most liable to occur. Provided that all the surfaces of the various teeth can be kept clean, the cavity prepared with perfectly sound enamel margins, even if the finished filling cannot be seen, will serve equally as well for the ultimate preservation of the tooth as if the greatest amount of "extension for prevention" had been practiced. It is this very uncertainty, brought about by the fact that unclean conditions demand treatment different from that which prevails were cleanliness easily secured, that has given us the necessary remedy of extension for prevention. When any uncertainty exists regarding

cleanliness, it is always good practice to cut cavity margins far enough to slightly expose the filling, and anything short of that is imperfect cavity preparation.

We certainly do not know how to prepare cavities when we advise the application of gold cap crowns for the anterior teeth. It is little short of malpractice to mutilate any tooth for the attachment of a gold cap crown, which may be restored to full usefulness and esthetic beauty with a durable filling, except when it is to be used as an anchorage post for the attachment of a bridge.

Proximal cavities in the anterior teeth are improperly prepared unless they are opened from the palatine exposure so that the filling when finished will be inconspicuous. A proximal cavity in a bicuspid or molar is improperly prepared if it does not have an anchorage step cut into the sulcus on the masticating surface, and the filling made with a knowledge of mechanics entering into the operation. No matter how carefully caries has been removed and enamel edges prepared, the filling will fail from the fact that it has not been seated with a view to withstanding the stress of mastication.

The various text-books deal rather exhaustively with this subject, therefore it is not my desire to elaborate. The impression I want to leave is this, We are not careful, and, therefore, not thorough enough. We do not consider each cavity as though it were one in our own mouth. If we did I am sure a good deal more glory would be ours, and our conscience would be clearer.

There are mouths where it is no more necessary to cut away tooth tissue to provide the condition which would be termed "extension for prevention" than it would be necessary to tear out all great toe-nails for fear of ingrowing, because a number of people suffering from that trouble as a result of wearing improper footwear have to resort to the operation for relief.

There are hundreds of mouths on the other hand where not half enough cutting is done, and these are the cases where I claim that you do not know how to prepare cavities.

In conclusion, I feel so strongly on this matter that slovenliness or inability to properly prepare cavities ought to be sufficient ground for cancellation of license to practice.

Lest I may seem to be egotistic, or better, egoistic, let me say here that my sole desire is to create discussion, to the end that good may result.

If I offend by seeming to pose as the only man who can properly prepare a cavity, I want to disabuse your minds of the idea. I am not *It*. I do not want to be *It*. I want to gather all I can from each of you (and each of you has something I can profit by) and I also am ready and willing to impart anything I know for your benefit. Therefore, if the paper, though it does not contain a single original idea, brings out the good that I desire, I am satisfied.

Proceedings of Dental Societies

PROVINCIAL DENTAL BOARD OF NOVA SCOTIA.

At the annual meeting of the Nova Scotia Dental Board, held on September 6th, 1905, the following officers were elected: President, Dr. Hibbert Woodbury, Halifax; Secretary-Registrar, Dr. George K. Thomson, Halifax; Treasurer, Dr. A. W. Cogswell, Halifax; Matriculation Examiner, Professor H. Murray, Halifax; Final Examiners, Members of Board; Committee on Education, Drs. Frank Woodbury, Thomson and Beckwith.

The following resolution was passed: Whereas, it has pleased Almighty God to remove from our midst a former member of the Dental Board, Dr. Fred. H. Parker; be it

Resolved,—That the Nova Scotia Dental Board has sustained a serious loss in this, the death of one of its former members, who was respected for his uprightness and sterling worth, and who was recognized by all as a superior dentist and worthy colleague;

Resolved,—That this resolution be published in the DOMINION DENTAL JOURNAL, and a copy be sent to the bereaved wife of our friend and colleague, and that this resolution be placed upon the minutes of the Board.

NEW JERSEY STATE DENTAL SOCIETY.

The following officers were elected at the meeting of the New Jersey State Dental Society, held in Asbury Park, on July 19th, 20th, and 21st, 1905:

President: J. E. Duffield, D.D.S., Fifth and Benson Sts., Camden, N.J.; Vice-President: M. R. Brinkman, D.D.S., Hackensack, N.J.; Treasurer: Dr. Henry A. Hull, New Brunswick, N.J.; Secretary: Charles A. Meeker, D.D.S., 29 Fulton St., Newark, N.J.; Asst. Secy.: Herbert S. Sutphen, D.D.S., 24 Kinney St., East, Newark, N.J. Executive Committee: M. R. Brinkman, D.D.S., Chairman, Hackensack, N.J.; Walter Woolsey, D.D.S., Elizabeth, N.J.; W. A. Jaquette, D.D.S., Salem, N.J.; J. G. Halsey, D.D.S., Swedesboro, N.J.; Harvey Iredell, D.D.S., New Brunswick, N.J. Membership Committee: C. H. Dilts, D.D.S., Chairman, Trenton, N.J.; Byron L. Rhome, D.D.S., Asbury Park, N.J.; W. H. Gelston, D.D.S., Camden, N.J.; Franklin Rightmire, D.D.S., Paterson, N.J.; W. F.

Naylor, D.D.S., Somerville, N.J. Essay Committee: Walter Woolsey, Chairman, Elizabeth, N.J. Clinic Committee: M. R. Brinkman, Chairman, Hackensack, N.J. Exhibit Committee: M. R. Brinkman, D.D.S., Chairman, Hackensack, N.J. Art and Invention Committee: T. N. Bradfield, Chairman, Newark. Prosthetic Dentistry Committee: A. Irwin, Chairman, Camden, N.J. Materia Medica Committee: Wm. H. Gelston, D.D.S., Chairman, Camden, N.J. Dental Literature Committee: B. L. Rhome, Chairman, Asbury Park. Contracts, Accommodations and Programmes Committee: Charles A. Meeker, Chairman, Newark, N.J. Clinical Conference: J. G. Halsey, Chairman, Swedesboro. Entertainment Committee: J. L. Crater, Chairman, Orange, N.J. Press Committee: C. S. Stockton, Chairman, Newark. Legislative Committee: F. Edsall Riley, Chairman, Newark, N.J. Committee on Abolishment of Jury Duty: Nelson M. Chitterling, Chairman, Bloomfield, N.J. Committee on Registration: Harvey Iredell, Chairman, New Brunswick, N.J. Smoker Committee: H. S. Sutphen, Chairman, Newark, N.J. Committee on Ethics: J. E. Duffield, Chairman, Camden, N.J.

ELGIN DENTAL SOCIETY.

The monthly meeting of the Elgin Dental Society was held recently in the office of Dr. F. E. Bennett. A large percentage of the members were present to welcome the President of the Western Ontario Association of Dentists of London. After the usual routine of business was transacted Dr. Bentley was introduced in a few kindly words, when he delivered a brief address and read a carefully prepared paper on "The Devitalization of the Pulp and the Filling of Root Canals." As this was one of the most important acts of the modern dentist it agitated questions and discussion full and free, and all were much benefited by the same, at the close of which the Society, with the guest of the evening, were entertained by the President, Dr. F. E. Bennett, at Stevenson's. The toast list was as follows:

"Our King and Country," represented by all singing, "God Save the King."

"Our Militia," Drs. Taylor and Hongsinger.

"Our Educational Institutions," Drs. Bartlett and Lumley.

"Our City and Country," Drs. Teskey and Fear, of Aylmer.

"Our Own Elgin Dental Society," Drs. Teetzel, Way and Kennedy.

The toast of the evening, "Our Sister Dental Societies, the Western Dental and London Dental Societies," Dr. Bentley. "For he's a jolly good fellow," was sung lustily, and the neat speech which followed was considered a Depew "after dinner."

Dr. W. Fear, First Vice-President, Aylmer, took the toast list and called on all to drink to the health of the President.

Dr. F. E. Bennett, in a well-worded speech, unfolded his plans for the year, and desired to make this the banner year of the Elgin Society, urging all to be loyal and help to make it such. A printed programme will be placed in the hands of each member for the balance of the year.

The presence of Dr. Reynolds, President of London Dental Society, is expected at the next month's meeting.

NOVA SCOTIA DENTAL ASSOCIATION.

At the fifteenth annual meeting of the Nova Scotia Dental Association held at Halifax, September 6th to 8th, 1905, the following officers were elected: President, S. G. Ritchie, Halifax; Vice-President, W. H. H. Beckwith, Halifax; 2nd Vice-President, H. L. Mitchener, Mohane Bay; Secretary, W. C. Oxner, Halifax. Executive Committee—E. A. Goodwin with the foregoing officers.

The following resolutions were adopted: The Association by resolution accepted standards erected by the Dominion Dental Council, and two representatives, viz., Drs. Frank Woodbury and Geo. K. Thomson, and an alternate, Dr. M. P. Harrington, who were invested with power to act. The Dental Board was authorized to deal with any matters that may be referred by the Dominion Dental Council.

The Preliminary and Matriculation standards of Nova Scotia were freely discussed, and resolutions were passed authorizing the Dental Board to secure changes, adopting the standards of the General Medical Council of Great Britain, as applied to Great Britain and Canada. The Matriculation erected by the Dominion Dental Council, also the standard of the Medical Board of Nova Scotia.

The Association authorized the Dental Board to prepare and present to the Legislature amendments to the Dental law by which it will conform to the standards adopted by Ontario, Quebec and the West. Also that the title of Licentiate of Dental Surgery be conferred on all licensed dentists in the Province.

The question of a Dental College for the Maritime Provinces was discussed at length and resolutions were passed favorable to the scheme, and a committee on education, consisting of three members, was appointed from the Dental Board to enter into correspondence with the other Maritime Provinces concerning the matter.

The resignation of Dr. F. W. Ryan elicited the following resolution:

Whereas Dr. F. W. Ryan has during the past five years filled the position of Secretary of this Association in a very efficient manner, therefore

Resolved, That it is with much regret we accept his resignation, and we place on record our great appreciation of his services.

The time and place of next meeting will be appointed by the Executive Committee.

W. C. OXNER, *Secretary.*

COLLEGE OF DENTAL SURGEONS OF THE PROVINCE OF QUEBEC.

The annual meeting of the College was held in Laval University, on September 28th. Dr. G. E. Hyndman, of Sherbrooke, Que., was in the chair, and Dr. E. Dubeau acted as Secretary. Fifty members were present. Dr. F. A. Stevenson, of Montreal, read a very elaborate paper on "Dominion Registration." The members of the Board going out of office, Drs. C. F. Morison, E. Dubeau, and J. G. A. Gendreau, were re-elected unanimously. The new Board is composed as follows: President, Dr. F. A. Stevenson, Montreal; Vice-President, Dr. L. N. Lemieux, of Quebec; Secretary, Dr. E. Dubeau, Montreal; Treasurer, Dr. J. Gardner, Montreal; Registrar, Dr. C. F. Morison, Montreal. Committee—Drs. J. H. Bourdon, D. J. Berwick, J. G. A. Gendreau, Montreal, and Dr. G. E. Hyndman, Sherbrooke.

In the evening a banquet was given at the St. Lawrence Hall in honor of Drs. Trestler and Bazin who had completed their fiftieth year of practice of dentistry. It was a very pleasant gathering and very interesting things of the old time were told by the two guests. The dinner was closed with the hope that we may have the pleasure of celebrating their sixtieth anniversary.

Review

The American Text-book of Operative Dentistry, in contributions by Eminent Authorities. Edited by Edward C. Kirk, D.D.S., Professor of Clinical Dentistry in the University of Pennsylvania, Philadelphia. Written by Edward H. Angle, M.D., D.D.S., Henry H. Burchard, M.D., D.D.S., Calvin S. Case, M.D., D.D.S., Dwight M. Clapp, D.M.D., William Crenshaw, D.D.S., M. H. Cryer, M.D., D.D.S., Edwin T. Darby, M.D., D.D.S., C. L. Goddard, D.D.S., S. H. Guilford, A.M., D.D.S., Ph.D., Joseph B. Head, M.D., D.D.S., Louis Jack, D.D.S., Edward C. Kirk, D.D.S., F. B. Noyes, B.A., D.D.S., Louis Ottosy, D.D.S., C. N. Peirce, D.D.S., J. D. Thomas, D.D.S., A. H. Thompson, D.D.S., James Truman, D.D.S., New (3d) edition, enlarged and thoroughly revised. In one octavo volume of 899 pages with 875 illustrations. Cloth, \$6.00, net; leather, \$7.00, net; half morocco, \$7.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1905.

As new matter there has been added to this edition a chapter upon the uses of the Matrix in Filling Operations, by Dr. Crenshaw, which, it is confidently expected, will prove to be an addition valuable and helpful to teachers as well as to students. The section on Orthodontia has been treated anew, from the standpoint of occlusion as the scientific basis from which this important departure should be studied.

With the cordial consent of the late Dr. Clark L. Goddard, the treatment of the subject of orthodontia was committed to Dr. E. H. Angle, the chief exponent of the modern trend of thought upon orthodontia as a problem of occlusion. The text of each chapter has been carefully revised by its author, with the exception of that originally written by the late Dr. H. H. Burchard, whose work has been revised by the editor.

In the department of treating and filling of root canals there does not seem to have been much advance. The author speaks of hermetically sealing the apex of a canal with an impermeable substance. If an impermeable substance for such places has been found, why is it not mentioned and some record made of the experiments to show that it is impermeable. All the filling materials mentioned in the text have been shown to be permeable by both moisture and bacteria by at least three experimenters. It is a mystery why such loose statements are allowed to continue in our text-books. The chief reason given for the present edition is to bring it up to present knowledge in pathology and surgery, and yet this chapter remains as before in the face of experiments which have shown that its teachings are false.

"The employment of reamers is therefore advised only in nearly straight and rounded roots." Why ream such roots? the pulp can be easily extracted and the canal better filled with the smooth, natural walls. The author admits that fine and flat canals cannot safely

be reamed which are really the only canals needing the operation. Some day authors of books will not advise the reaming of canals at all as a routine practice.

There are two chapters in this edition which are alone worth the price of the book—the one on the uses of the matrix, by Crenshaw, and the other on orthodontia, by Angle. Although there are operators who have no place for a matrix in gold filling, the great majority use the matrix as a help in inserting large proximate fillings, especially where non-cohesion gold or tin is used. Dr. Angle, like Dr. Crenshaw in his department, has brought the chapter on orthodontia up to his present teaching. The subject is not at all fully treated, but sufficient is given to place the practitioner of operative dentistry in a position to do no harm and to treat simple cases with Angle's appliances.

On the whole, this edition is well up to the standard of works published by Lea Brothers. The editors have revised most of the chapters and made them in conformity with present notions of operative dentistry. The book is well adapted for the student and the practitioner, carefully written, well edited and well arranged.

A Practical Treatise on Artificial Crown, Bridge and Porcelain Work.

By GEORGE EVANS, formerly Lecturer on Crown and Bridge work in the Baltimore College of Dental Surgery, Member of the National Dental Association of the Dental Society of the State of New York; Honorary Member of the Maryland State Dental Association, etc. Seventh edition, revised and enlarged, with 754 illustrations. Published by the S. S. White Dental Manufacturing Company, Philadelphia. 1905. Dedicated to William Carr, M.D., D.D.S.

Dr. George Evans, New York, the author of this most popular work, is widely known to the profession and especially well known in Ontario, where he gave a course of lectures a few years ago on the subject treated in this book. Few, if any, authors have had a longer or more varied experience in their chosen departments of dentistry than Dr. Evans. The seventh edition was undertaken to bring the work up to modern ideas in porcelain as applied to crown and bridge work. The whole work has been revised and procedures simplified. The work is essentially practical, leaving the discussion of pathological condition and therapeutic indications and metallurgy to such works as are devoted to those subjects. It is a book descriptive of exact details in technical procedures. Any student or practitioner with ordinary intelligence can follow its instructions and can learn to practice crown and bridge work with credit to himself and satisfaction to his patients. Such works are a great help to the progressive men in the profession.

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VOL. XVII.

TORONTO, NOVEMBER, 1905.

No. 11.

DENTISTRY IN CANADA IS NATIONALIZED.

The first official meeting of the Dominion Dental Council was held in Toronto, November 15th, 1905. All the provinces of Canada were represented except British Columbia. Nova Scotia was represented by Drs. Woodbury and Thomson; New Brunswick, by Dr. Magee; Prince Edward Island by Dr. Bagnall; Quebec, by Drs. Stevenson and Glabenskey; Ontario, by Drs. Abbott and Burt; Manitoba, by Drs. McInnis and Bush; Alberta, by Drs. McClure and Bruce; Saskatchewan, by Drs. Cowan and Size.

On November 14th, the Executive Committee, consisting of

Drs. Woodbury, McInnis, Willmott and Cowan, met to complete the draft of the constitution and by-laws to govern the Council. When the Council met, the report of the Executive Committee was received and, after three days' discussion, adopted, with certain amendments.

Then followed the election of officers : President, H. R. Abbott, London, Ont.; Vice-President, S. W. McInnis, Brandon, Man.; Secretary-Treasurer, D. W. Cowan, Regina, Saskatchewan. Examiners were appointed to conduct the first examination, June 7th, 1906.

The examination will embrace Operative Dentistry, Prosthetic Dentistry, Orthodontia, Medicine and Surgery, Materia Medica and Therapeutics, Anatomy, Physiology and Histology, Bacteriology and Pathology, Physics, Chemistry and Metallurgy, Jurisprudence and Ethics, Practical Operative Dentistry, and Practical Prosthetic Dentistry.

The standard set by the Council for its certificate will be :

Matriculation accepted by the General Medical Council in Medicine or Dentistry of Great Britain or the provincial universities of Canada ; attendance on four courses of seven months each, and be a graduate of a recognized Canadian Dental College or University ; must have studied Dentistry for a period of not less than forty-two months, and pass the examination set by the Dominion Dental Council.

Provisions were made to respect the rights of those now in practice and those now studying Dentistry in Canada.

Class A includes all those who may enter upon the study of Dentistry in Canada after January 1st, 1905.

Class B includes all those who are now students of Dentistry in Canada.

Class C includes all those who have not been ten years in practice in Canada.

Class D includes all those who have been in practice more than ten years in Canada.

Class A must comply with the requirements as set forth above.

Class B must pass the examination set by the Council.

Class C must pass a modified examination or wait for the expiration of ten years.

Class D must have fulfilled certain requirements during their practice, and present certain certificates of qualification.

Seven provinces entered into the agreement. British Columbia, not being represented, could not enter. Quebec delegates did not come with a mandate from their association to either reject or accept, but to report back to the association, which it is expected

it will do with a favorable result. At the next meeting, which will be held at Montreal during the meeting of the Canadian Dental Association, it is expected that both Quebec and British Columbia will enter.

In our next issue will begin the publication of the complete constitution and by-laws and transactions of the Council.

DURING the week of the meeting of the Dominion Dental Council the Toronto Dental Society held its annual supper, at which W. T. White, Manager of the National Trust of Toronto, delivered an address on "Finance and Investments." Dr. McInnis and Dr. Bagnall also addressed the meeting. The Board of Directors entertained the Council at dinner at McConkey's the evening before they left the city.

For Sale.

Dental practice in Toronto for sale. Apply,

THE C. H. HUBBARD CO.

For sale, electric light wall bracket and reflector, also a furnace, driving wheel, and Unique lathe head with chucks.

DR. A. A. BABCOCK,
Brantford.

Dominion Dental Journal

VOL. XVII.

TORONTO, DECEMBER, 1905.

No. 12.

Original Communications

PROSTHETIC DENTISTRY.

By H. WOODBURY, HALIFAX.

The definition of prosthesis in general surgery is, "The addition of an artificial part to supply a defect of the body."

The definition, therefore, holds good in the domain of dentistry, and we claim it invades the field of operative dentistry, so far as there may be supplied artificially any substance to take the place of lost tissue of the body.

If, therefore, our premises are correct, any filling inserted in a tooth for the purpose of taking the place of tissue lost from decay or otherwise, comes under the head of dental prosthesis.

The territories of prosthetic and operative dentistry not only approximate, but it is very difficult to define their boundaries, and if we insist upon a definite line of separation, we are involved in endless perplexities. We take this line of thought rather than any discussion of the technique of prosthesis, however alluring that path might prove to be.

But there are legitimate fields for each to occupy. The operations can be classified in the main, so that there need be but little confusion in the mind, especially of the student. Granting, then, for the sake of our discussion, that there is a line of cleavage, we would just here condemn in the strongest language any tendency to place one department above the other.

The man that so far forgets his profession as to indiscriminately sacrifice teeth that he may replace them with artificial dentures, having an eye to the purely prosthetic, is on a par with the man that can only see in the mouth of his patient an opportunity for crowns and bridges. And just here we must not be understood as condemning either in their proper place, but we do think that the career of many a young practitioner has been marred by just such a false notion.

There is, we think, a growing disposition on the part of some dentists to assume a kind of superior air, and we hear the remark, "Oh, I give my attention to operative dentistry; I don't care for prosthetic dentistry; I dislike mechanical work." We think such a state of mind is not conducive to the highest attainment in any calling. We fain would pose as dental surgeons, and often forget that surgery, in all its branches, is almost entirely mechanical, so much so that no man can excel in the practice of surgery in any of its departments if he does not possess mechanical ability in a large degree.

No amount of technical lore can take the place of the dexterous fingers.

We grant that this is an age of specializing, and within reasonable bounds such specializing often brings good results to patient and operator, but if we subdivide our work to the extent of forgetting or failing to master in a fair degree the profession as a whole, we just to that extent lessen our usefulness.

Take, for example, the craze on porcelain work; if the articles in the dental journals and some of the demonstrations are an indication of the extent to which that work is being pushed, then woe to porcelain work; for as in the case of unwarranted bridge-work the failures will be "legion." We must not forget that we will have failures, do as best we can.

But it is the extreme specializing that brings disappointment to the patient and discredit on our profession.

In our own country the demand is for an all-round dentist. It may be well enough in very large cities to relegate some of the work to the man who runs a dental laboratory and advertises cut prices, but it is not, we think, a benefit to the profession in the long run. It gives the prosthetic side too much the air of a factory; it lessens the individuality of the operator, which is always injurious to character.

We think one of the beauties of our profession is the scope it gives to individual effort, and through the personal relation with our patients, so that if work is well and faithfully done there grows up a mutual friendship, and we win and deserve the respect of our patients.

We are convinced that in this regard dental prosthesis plays quite as important a part as any. And should it not? When all other efforts have failed from whatever course, what a boon to be able to restore to usefulness and comeliness the otherwise disabled and disfigured oral cavity.

EARLY HISTORY OF DENTISTRY IN NEW BRUNSWICK.

By A. J. MCAVENNEY, ST. JOHN.

At the request of some of my co-workers in St John, I have consented to write on the early days of dentistry in this city, as far as it is in my power to do, and this, by the way, includes the early history of dentistry in New Brunswick. The fire of 1877 destroyed, to a great extent, the records of the past, so I find the task not as easy as I at first supposed it would be. To Mr. Clarence Ward, who is writing the history of St. John, I am indebted for the following advertisement, which is the first I have been able to discover:

Mr. Rath, surgeon-dentist, returns his thanks to the ladies and gentlemen of St. John for the liberal encouragement received during his stay in this city. Those who wish further services will please signify the same to him immediately, as he intends leaving this place shortly.

8th February, 1823.

If Mr. Rath did leave St. John in 1823, he returned again, as the following advertisement will show:

July 23rd, 1825, St. John *Courier*: Mr. Rath having returned from Fredericton purposes remaining in this city for the season. Those ladies and gentlemen who may have occasion for his professional services are requested to make application at his lodgings, at Mrs. Smith's, opposite the Bank of New Brunswick.

In the same paper, on the same date, is another dental advertisement: The subscriber respectfully gives notice to the ladies and gentlemen of St. John, that he is ever ready to attend to the various operations on the teeth. Whole and half sets with spiral fastenings furnished at the shortest notice. Inquire at the house of Mr. Henry Hannigar, corner of Germain and Princess Streets.—DANIEL HARWOOD.

In 1825 the medical men of this province must have had an Examining Board, and any man who advertised himself as doctor must have been required to pass it, as the following advertisement will show:

Dental Surgery—Dr. Harwood (late of the Boston Medical Society): Having undergone an examination before the Medical Board of New Brunswick, and being licensed by His Excellency, Sir Howard D. Douglas, to practice in this Province as surgeon dentist, respectfully tenders his personal services to all who may have occasion for them. Applications to be made at his rooms in the parish of Portland House of Mr. J. P. Payne.

St. John, December 3rd, 1825.

I am informed by Mr. Ward that Mr. Payne's house was situated below Long Wharf.

"Of Mr. Rath I can trace nothing beyond the advertisement I have just read to you. So far as I can learn, he was the first dentist to advertise in Fredericton and St. John."

In the biography of Joshua Tucker, by Dr. Burton Lee Thorpe, in the January number of the *Dental Brief*, 1905, I find that Dr. Daniel Harwood became associated with Dr. Tucker, 1833, and that they together are given the honor of being among the first to give us artificial teeth, as we have them to-day. Dr. Harwood was born in Barre, Mass., March 21st, 1801; he died at Dorchester, Mass., October 2nd, 1881, in his eighty-first year. I copy the following from his obituary notice in the *Cosmos*, 1882: "At the annual meeting of the American Academy of Dental Science, Boston, of which Dr. Harwood was formerly President, resolutions were unanimously passed expressive of the Society's estimate of his moral worth and professional character, his energy, talent, courage and fidelity, and in recognition of the fact that he was one of the first in this country to take a high stand in the practice of his profession."

In 1867-8 Dr. Daniel Harwood was Professor of Dental Pathology and Therapeutics in the Harvard University. Dr. S. G. Perry, in an article on "Art," in the dental profession, published in the June number, *Dental Cosmos*, 1903, writes: "I firmly believe that some trace of love of art and through it beauty can be found in any human being." I question if he would have made that statement had he seen the mechanical work done in St. John previous to the coming to our city of those gentlemen whom I have just mentioned. I saw a case supposed to have been inserted previous to 1820. It was crude in the extreme.

A Dr. Whitney came here from Maine in 1837 and opened an office on the corner of Germain and Church Streets. He was a man of prepossessing appearance, and was well liked by those who sought his professional service. Nevertheless he could not work up a practice of his liking, and after a few years left for New York, where he entered upon a lucrative practice.

The following gentlemen must have been stars of the first magnitude. One thing is certain, they had but a short life in this community:

Dentistry.—Messrs. Ver Valen & Thorne, of 281 Broadway, New York, surgical and mechanical dentists from London, respectfully inform the citizens of St. John that they perform every operation in dental surgery on the most approved principles now practiced by all European dentists of celebrity.

Rooms at Mrs. Belyea's, Germain Street, opposite the Baptist Meeting-house. Patients attended at their residence if preferred.

September 9th, 1840.

What a pity it is that St. John has no record of those dis-

tinguished gentlemen. I cannot find among my old friends an individual who has any recollection of them.

We had a Dr. Gourard from Paris in 1833. Dr. William Bayard describes him as having cut a great dash. He ran in debt wherever he could be trusted, and then left suddenly for parts unknown, leaving behind him numerous mourners. Dr. William Bayard's father wrote a parody on his departure.

In the *Courier* of August 8th, 1844, is the following interesting advertisement: T. Hutchinson, dentist, begs leave to acquaint the ladies and gentlemen of St. John and its vicinity that he has removed his office to King Street, in the house owned by W. P. Reid, a few doors below the St. John Hotel, where he is prepared to execute with promptness all orders in the list of his profession. Incompatible teeth set on gold plates or pivots, from one to full setts, as may be required. Extracting, sealing and plugging teeth done in the best manner. Clocks, watches and jewellery repaired.

T. Hutchinson, with his brothers, William and George, landed in St. John from England in 1819. William was the grandfather of Mr. D. L. Hutchinson, meteorological director. T. Hutchinson took up dentistry, as did also a son of his named George. I know the younger Hutchinson always went by the name of George, for Dr. T. D. Forster told me he frequently had him to assist him in his mechanical work.

Two brothers named Vanbuskirk practiced dentistry here in 1840. The first time that ether was administered in St. John for extracting teeth was in the office of the Vanbuskirks by Dr. William Bayard. Dr. Bayard tells a very amusing story of all the precautions he took with his lady patients, and also the preparations made by the dentists in case the patient gave signs of being at all unruly. If she had been a raving maniac she could not have been more closely secured before they attempted to administer the anesthetic. This was in 1844, shortly after Dr. Horace Wells, the American dentist, discovered surgical anesthesia. One of the Vanbuskirk brothers married Miss Reid, daughter of a prominent pilot. Miss Reid at that time was considered the handsomest lady in St. John. The Vanbuskirks left St. John in the early fifties, one going to Halifax, the other to Montreal.

Dr. Joseph C. Hatheway graduated in 1850 from the Philadelphia College of Medicine. In 1852 he commenced to practice dentistry in St. John, and in 1854 the Philadelphia College of Dentistry conferred upon him the honorary degree of doctor of dental surgery. Dr. Hatheway took a very active part in Masonry, and was one of the most prominent Masons in St. John in his day. Dr. Hatheway compiled and published a pocket manual of the craft degrees. His knowledge of the ritual was such that the Grand Lodge appointed him instructor of the work, and in this capacity he became instructor to various lodges, or

within their jurisdiction. He was a great sufferer by the fire of 1877, but bore his loss manfully. In 1891 he retired from practice, and died April 22nd, 1899, at the advanced age of 78. He was the first St. John dentist to administer nitrous oxid for the extracting of teeth.

Dr. Cyrus Fiske came to St. John from Salem, Mass. By his professional skill and courteous manner he soon entered into an extensive practice. Dr. Fiske was one of the old school, who did more in the line of moulding and carving porcelain teeth. He was one of the first to make what are now called carved block teeth. Gold plate was the principal thing used. Dr. Fiske had a great prejudice against rubber work as he called it. The moulds of the S. S. White teeth, in the sixties, did not meet with his approval, so he frequently sent moulds, especially the molars, to S. S. White to have him improve upon his blocks. This in no way displeased Mr. White, for he told me in a conversation I had with him in 1867, in Philadelphia, he was always pleased to hear from his old friend, Fiske, and that his suggestions were good. The Doctor was a good shot, as well as a good fisherman, and was a great admirer of the drama. As a boy I never visited the Old Lyceum without seeing the genial Doctor taking in the performance. As an oculist and aurist he had a good reputation, and had a large practice in these specialties. Dr. Fiske married Miss Boyd, of St. Andrew's. His family consisted of three children, Dr. Campbell and Dr. Cyrus Fiske, and Mrs. Inches, wife of Dr. Inches, who is the only one of the family living. Dr. Fiske died August 3rd, 1874, aged 54. Few professional men went down to the grave more truly beloved by his patients and those who knew him than Dr. Cyrus K. Fiske. Dr. Fred. Robinson, a leading dentist in Boston, studied with him. Dr. Robinson died in 1904.

Dr. J. McKenzie Campbell Fiske was born in St. John, March 19th, 1847. He graduated B.A. from Harvard, 1868; A.M., 1868; M.D., 1871; D.M.D., 1876. Dr. Campbell Fiske was a son of Dr. Cyrus Fiske. He did not enter upon the study of dentistry till after his father's death. He was a good student and a good friend, was of a retiring disposition, but was full of life, and had a keen sense of humor. Dr. Fiske was familiar with the best literature, and took an interest in all matters of art, music, etc. While at Harvard University he embraced every opportunity of hearing the best lecturers, actors and musicians who came to Boston. He was a lover of Emerson and counted it among his greatest privileges that he had heard him deliver one of his memorable addresses. With Oliver Wendell Holmes who was then professor and lecturer at the Harvard University Medical School, he had frequent intercourse, so that in taking up his professional career he brought from the Alma Mater not only considerable technical knowledge and a deep interest in the progress of medical science, but also that culture of intel-

lect and taste which is the finest product of university association, and which in Dr. Fiske would, no doubt, have reached still higher development had his life continued. He was an oculist and aurist, and, I think, in these specialties he would have been a great success. I lost in the death of Dr. Fiske one of the dearest friends of my younger days. He married Miss Emma Skinner, in June, 1873. Mrs. Fiske is a lady of fine literary taste, and has long been active in philanthropic work.

Dr. T. D. Forster, who had studied with a brother of Dr. Cyrus Fiske, in Salem, Mass., opened an office on the corner of Germain and Queen Streets, in 1855. A few years later he moved to what was then known as the "Ratchford House," located where the residence of Dr. Inches is at present. Here he practiced till 1870, when he went to Philadelphia, leaving the good-will of his practice to Drs. Haley and McAvenney.

Dr. Fiske, at one time when referring to Dr. Forster, said that if they should together open an office in Paris they would soon work up a large practice. This, I believe, was because Dr. Forster, like Dr. Fiske, was a born mechanic. His plate work is not to be excelled to-day, and as a manipulator of go'd, he was excellent. Dr. Forster was an enthusiastic Mason, holding the highest degree in the Province. He took an interest in all kinds of sports, and I am pleased to say he is still living, enjoying his latter days in Norristown, Pennsylvania.

Mr. Clarence Ward states that in 1855-6 we had a Dr. Thompson practice here. His stay was short, and he died shortly after leaving St. John, at the home of his father, who was a well-known physician on the North Shore.

Dr. Edmund Ironsides Hewitt, who was a graduate of the University of New Brunswick, and a young man of much promise, opened an office on King Street in 1866. But he soon had to retire from practice on account of failing health, and died April 23rd, 1868, in his twenty-fourth year.

In 1867 St. John was honored by having a dentist from Paris, Louis de Chiverie by name. Louis, for some years, hovered between St. John and Halifax, taking in the towns of New Brunswick and Nova Scotia. He was noted for his outdoor display. In fact, no such character has visited us since. He impressed himself so much on the members of the Nova Scotia Legislature that when Dr. Allen Haley presented a bill to regulate dentistry in that Province, in 1869, it was rejected.

In the same year I endeavored to get a bill through the New Brunswick Legislature, but meeting with opposition from some dentists in St. John I withdrew it, and so we remained without a law to regulate dentistry in New Brunswick until 1890, when, by the efforts of Dr. Murray, of Moncton, the New Brunswick Dental Act was carried through. It was still further amended in 1893 and 1896.

Drs. Goodfellow and Frost had an office on King Street, about

where the establishment of MacAuley Bros. now stands. They practiced together but for a short time. Dr. Goodfellow left St. John for Sussex, where he died a few years ago. Dr. Frost continued practicing in St. John for five or six years.

In 1870 Dr. J. E. Griffith started to practice in St. John, on Charlotte Street. He was living on the corner of Germain and Duke Streets, when he was burned out by the fire of 1877. His office after the fire was in Mrs. Kater's Building, Germain Street. In 1886 Dr. Griffith removed to Woodstock with his family. He is now practicing in Waverly, Mass.

Dr. Cunningham, who came to St. John from Annapolis, N.S., in the early sixties, opened an office on Germain Street, near the corner of King. Dr. C. W. Bradley, of Moncton; Dr. Arnold, Sussex, and Dr. Dan. A. Pugsley, now retired, were students of Dr. Cunningham. While duck shooting on Foshay Lake, Dr. Cunningham and a companion, named Foster, were drowned by the upsetting of their canoe, on the 10th of September, 1875. Dr. Cunningham's brother succeeded him in practice, but after a few years he went to Annapolis.

Dr. D. A. Pugsley commenced practice in 1875. He retired from practice in 1881. Dr. Bradley became a partner of Dr. Pugsley in 1876, and was with him for one year, when he removed to Moncton.

Dr. E. Sangster practiced in an office on Main Street for some years previous to 1890, but left here in 1892.

Dr. Canby Hatheway graduated from the Pennsylvania College of Dental Surgery in 1868, and in the same year started practice in St. John. In 1885 Dr. Hatheway left for Paris, where he had a good practice, but ill-health compelled him to leave France, and he started again for St. John. He remained here until 1901, when he removed to Halifax, but at the present time is in Berwick, N.S., where he has an extensive practice, and I am sure his friends will be delighted to hear that he is enjoying good health.

In September, 1870, Drs. Haley and McAvenney succeeded to the business of T. D. Forster. Dr. Allan Haley graduated from the Philadelphia Dental College in 1866. Our partnership lasted only one year, for having married a Miss Smith, of Windsor, N.S., daughter of Bennett Smith, Esq., for family reasons he removed to that town and began the practice of dentistry. After a few years he retired from the practice of his profession and went into the insurance business. He had always a love for politics from his school days. He represented the County of Hants in the Provincial Legislature for several terms. He died at Ottawa, on April 23rd, 1900, while representing the County of Hants in the Dominion Parliament. The Minister of Finance, who was a very dear personal friend of Dr. Haley, conveyed his remains in his private car to Windsor, N.S., where they were buried.

Dr. F. K. Crosby, who was graduated from the Philadelphia College in 1867, took Dr. Haley's place as my partner in 1871. Dr. Crosby by his kindly disposition soon became a favorite with everybody with whom he came in contact. In addition to being a good all-round dentist, he was by far the most cultured literary man dentistry has had in the Maritime Provinces, and I question if in Canada to-day, among all our bright men in dentistry, there is one with the literary attainments that Crosby possessed.

The last article that Crosby wrote appeared in *Scribner's Monthly* during 1874. It was headed, "Gastric Literature," and its object was to show up those English writers who introduced the palate and the stomach into everything they wrote. Dr. Crosby was a poet as well as a prose writer. His "Lily in the Linden" was a beautiful poem. His "Lorraine," published in the Boston *Advertiser*, was afterwards universally published. It is to be found in Longfellow's poems of places. "Answered," another poetic gem, appeared in *Appleton's*. He wrote for the New York *Independent*, Springfield *Republican*, *Canadian Monthly* and *Dental Cosmos*.

Dr. Crosby was offered a professorship in the Philadelphia Dental College in 1868, but declined the honor. He was married to a Miss Fannie Hammond, of St. John. His health became so poor that he was ordered to California. He died in San Diego, December 3rd, 1874.

Dr. Moses Gross practiced dentistry in St. John, but removed before the fire of 1877 to Moncton, thence to Albert County, where he practiced for a number of years. He died in Moncton, July 28th, 1885.

Dr. A. McAllister graduated at the Pennsylvania College of Dental Surgery in 1874. He practiced in Brooklyn, N.Y., and then removed to Bear River, N.S. He came to St. John in 1876, afterwards he took up his abode in Fredericton, commencing practice there a few months after the fire. He died in Australia after being there but a short time.

George Peter Caldwell was born about 1850. He began the study of dentistry under his brother, Botsford Caldwell, in Boston, Mass., was graduated at Harvard Medical College in 1874, at the Dental College in 1875, and began the practice of dentistry in St. John immediately on his return. In 1882 he married Steen, daughter of William Livingstone, M.D., who died in October, 1902, leaving no children.

He gave up the practice of dentistry in 1884, and removed to Halifax, where he engaged in the practice of medicine, giving that up in turn to resume the practice of dentistry in South Boston, Mass. His health not being of the best at this time, and not being quite satisfied with the necessary drudgery of the dental office, he gave up this work and made several transatlantic and transpacific voyages as ship surgeon on passenger steamers. At the present time he is practicing medicine in London, England.

Thomas A. Hallet, of Sussex, now in St. John's, Nfld.; J. M. Magee and W. H. Graham (brother of Mrs. G. O. Hannah), who died in London, England, were students of his.

Charles M. Godsoe entered into partnership with his brother, Frank, in 1884, but left St. John for Trinidad some eight or nine years ago.

Dr. J. M. Smith was graduated from the Boston Dental College in 1878; he was one of the scrutineers appointed by the Government under the Dental Act of 1890, and practiced in New England up to 1904, when he retired.

Dr. William H. Steeves graduated from the New York College of Dentistry in 1888. He started practice some years ago in St. John, and now has a lucrative practice in Fredericton.

Through the efforts of Dr. C. A. Murray, of Moncton, a meeting of dentists was called in 1889 at the office of J. M. Magee, of St. John. I was honored by being made chairman of that meeting; Dr. Magee acted as secretary. The meeting decided to have introduced at the following session of the Legislature, a law governing the practice of dentistry in New Brunswick. Dr. Murray had the bill drafted, and the Legislature in 1890 passed what is now known as the "New Brunswick Dental Act of 1890." This Act was further amended in 1893 and 1896.

Drs. B. H. Torrens and J. M. Smith were appointed scrutineers by the Government to report on those who were eligible to practice. The first meeting for the purpose of organization was called at Fredericton, in August, 1890. The honor of being elected President fell to my lot. Dr. Torrens, of Fredericton, was made Vice-President, and Dr. C. A. Murray, Secretary-Treasurer.

The Dental Council was formed by four members elected by the Dental Society, and three appointed by the Governor-in-Council. At this meeting the gentlemen elected were: Drs. J. M. Magee, of St. John; B. H. Torrens, of Fredericton; W. D. Camber, of Woodstock, and W. H. White, of Sussex.

The Government a month later appointed Drs. C. A. Murray, of Moncton; J. G. Sproule, of Chatham, and A. F. McAvenney, of St. John.

It devolved upon me to call a meeting of the Dental Council in the following October in St. John at my office. Dr. C. A. Murray was elected President of the Council, and Dr. J. M. Magee, Registrar, and so the first organization of the dentists of this Province was effected.

The object of this paper is to place in proper form a number of facts of which this Society has no record, and as far as possible I have attempted to do this. I have not considered it necessary to make particular mention of those gentlemen who have entered the profession since the year 1880, for their names will be contained in the records of the Society, and some future analyst, a little further removed from the present time, will not fail to do them honor.

OFFICE AND LABORATORY INCIDENTALS.

BY DR. C. F. GRAHAM, ST. JOHN.

Dentists living, as the majority do in these provinces, some distance from a dental depot, where every want cannot at the moment be supplied, very frequently find that the article or material most required is not at hand when wanted, and if a substitute or makeshift can be contrived for the time being it will go a long way towards solving the difficulty; or, on the other hand, if we can make use of a short cut and thus obtain the desired result, it simplifies matters, especially when our time is at a premium, and with that end in view I have endeavored to group together some ideas and suggestions, although for the majority of them I do not claim originality.

To Make a Temporary Crown in Ten Minutes.—In crowning anterior teeth you all have had cases when the patient objects to appear in public minus a tooth, even for a few hours, and on looking over your stock you find that you have nothing suitable for the case, or if so your time is so taken up you cannot give them proper attention.

You can solve the difficulty in a few minutes by selecting from your plate or rubber teeth one of proper size and shade; take a Davis post or make one of almost any convenient material (German silver will do nicely), and insert one end between the pins of the tooth and squeeze the pins together until they jam enough on the post to hold it in position; tack with soft solder by passing carefully through the flame of a Bunsen burner, and try in the mouth and adjust post; then pack Gilbert's stopping or other easily softened gutta-percha about post and palatine portion of tooth, and while soft press to place in the mouth, holding the crown firmly between thumb and forefinger in such a way that you force the gutta-percha about root of tooth, remove and trim away excess of gutta-percha, and set as an ordinary crown.

A temporary crown can be made in this way in a few minutes; the one I pass about was worn for several weeks.

To Remove a Morbid Growth of Gum Tissue from a Cavity.—Frequently we have cases when a morbid growth of gum tissue fills, or partially fills, a cavity. Its removal is not only somewhat painful, but it is also a mean piece of work to cut it away on account of the excessive hemorrhage. In the majority of such cases it can be removed neatly and with despatch, painlessly and bloodlessly, by ligating with a piece of silk to either the tooth with the cavity or the adjoining one, whichever is the most convenient. This cuts off the blood supply and reduces to a minimum the pain when cutting away the growth with a side motion of a small flat burnisher or other suitable instrument. If

a bad case touch with tri-chloracetic acid. For those who have not tried this method of removing this troublesome growth the result will be surprising.

Carbolic Acid for Cleaning Cavities.—Wiping a cavity with an alcohol saturated solution of carbolic acid to ascertain the extent of decay in the fissures of molars and bicuspids, while in the course of preparation, will show you very nicely whether you have proceeded far enough with your excavation and bring out in relief, so to speak, some crevice that would otherwise possibly be overlooked.

Dental Lac for Broach Handles.—Dental lac or sealing-wax warmed and moulded about a Kerr or Donaldson broach will make a very convenient handle.

To Make Finishing Wheels.—Small finishing wheels for the dental engine, mounted upon worn-out burs, can be made with little trouble from old corundum wheels by melting the material in a suitable dish and stamping them out with some simple contrivance. I show you some I made in this way, both mounted and unmounted, together with the stamp for making them made from an old lead pencil top. I might here add, to remove the glaze from the wheels immerse for a few moments in alcohol.

To Sharpen a Lathe Cone.—If there is one thing more than another that is prone to cause profanity in the laboratory, it is the slipping and squeaking of brush wheels on a dull or threadless lathe cone, and the remedy is so simple that the only wonder is why one did not think of it before. Run the lathe toward you and hold an ordinary file or fine vulcanite file firmly upon the thread and let it travel up the cone and repeat. One minute's work will make it as good as new. I show you one that has recently been sharpened in this way.

To Make Dam and Clamp Forcep Springs.—If you should have the misfortune to break the spring in your clamp or dam forcep, you can easily manufacture another from an old clock spring, which in these days is easily obtained. Those I show you were made some eight years ago, and are giving excellent satisfaction.

These, as well as numerous other little things, are doubtless chestnuts to the majority present, and to prevent being prosy I will not elaborate, but merely mention a few in closing.

A Good Lathe Finishing Wheel.—Hot water washers used instead of felt wheels in finishing plates about the teeth will reach very satisfactorily inaccessible places.

To Set Plaster-of-Paris Promptly.—A small amount of plaster scraped from an old cast is the king of methods to facilitate the setting of plaster.

A Good Investing Material.—A mixture of fine, hard coal ashes and plaster is an excellent investing material.

A Flask Cleaner.—A lump of washing soda placed in the vulcanizer makes the cleaning of the flask an easy matter.

An Excellent Bracket Table Cover.—Last, but not least, in re-covering your bracket table use ordinary upholstering leather in some dark or maroon shade, and you will find it durable, neat, and, above all, cleanly, a quality the usual covering lacks decidedly.

ORAL SURGERY.

BY DR. W. C. OSCNER, HALIFAX.

On learning that I was expected to say a few words on oral surgery, my first thought was, "Well, if there is any one subject in dentistry of which I know very little, it is this—oral surgery, strictly speaking." This seems to be a reflection either on my ability to absorb the teaching of my "Alma Mater" or on the latter's ability to teach. I am not here to criticize this or any dental college individually, as all such have chairs more or less efficient on the subject. I feel safe in saying we all agree it is an important one, particularly in view of the fact that with the lengthening of the course, more subjects, and more of those subjects are being introduced and taught, which should not only broaden our views, but should make us more competent men, more worthy of the ever-increasing confidence of the public, and of those who entrust themselves to our care.

Oral surgery is one of the subjects I feel we know too little of. This is probably due to many reasons. One may be that as students, some of us were not properly impressed with our responsibility in the examination of the mouths of our patients. How frequently after the insertion of various fillings, bridges, etc., we say to our patient, "Your mouth is now in a good condition," with scarcely a look at the surrounding parts and tissues, and if our attention were called to something a little unusual, I fear many of us would be unable to form a correct diagnosis, and would probably dismiss the patient with an assurance that it would be all right.

In many colleges the lectures on oral surgery are delivered by purely medical men, unacquainted with the dental needs, and who fail to inspire the student with its just importance. The latter endeavoring in a comparatively few months to cram his mind with, and assimilate the apparently more practical subjects, is apt to neglect surgery, or at least have a sort of detached idea of it.

As practitioners we may claim that we are seldom or never called on to perform any but the minor surgery of every-day practice. Is this the fault of the public, or the insufficient knowledge and skill of the dentist?

Some one has asked the question, To what extent may the degree D.D.S. legally qualify one to practice oral surgery, and not render the dentist liable under the Medical Practice Act? The average man, I think, will not be concerned so much with the legal aspect of the question, as by his professional fitness for this work.

Now, I do not claim that every dentist could or should become an oral surgeon, performing major operations; but the very word surgery seems not to convey enough to our minds. It should first of all stand for cleanliness, not mechanical, but surgical cleanliness, a fact which all of us know, but so many neglect. In the surgery of every-day practice, in the removal of pulps, for instance, how many of us, or rather how few, observe thoroughly aseptic conditions, and this holds true not only of nerve broaches, but of most instruments used so frequently every day in a large practice. The wonder is that we come through with so few cases of abscess, etc., as we do. In diagnosis we are often deficient. When a mouth presents itself in which are manifest pathological conditions, we should have an intelligent idea of what is wrong.

Nowadays it is the dentist who is most frequently consulted on any ill conditions of the oral cavity, and by a correct diagnosis, if we cannot ourselves give relief, we can at least give valuable advice, which may not only have this result, but may be the means of even saving life itself.

We are told that a benign tumor so frequently manifest in the mouth may by improper treatment assume a malignant form and be the cause of death. Knowledge is power, and it is only by the increase of knowledge that our profession has reached its present standing. Not so many years since the press, desiring to announce a gathering of dental men, would chronicle it as "The tooth-pullers in session," or some similar phrase, which about represented public opinion. But those days are past, till now we claim our young profession second to none. If this claim is to be made true it will be only by our increased knowledge and usefulness to humanity, so let us as professional men have high ideals, let us endeavor to become more useful to our fellow-men, and let us, above all things, inspire young men with the fact that the dentist of the future requires to know not only how to construct a good bridge and insert an inlay, but to have a broader, general knowledge, and let oral surgery be prominent in the course.

ELECTRIC IGNITORS FOR DENTAL LABORATORIES.

By W. E. CUMMER, TORONTO.

The problem of producing heat for the ignition of substances does not appear to be confined by any means to our present time. Thus, in Greek mythology, we read of Prometheus bringing fire to mortals in a hollow wand, which legend probably springs from the ancient Greek custom of rubbing two sticks together, producing the necessary spark. The absence of the "Lucifer" match in ancient Roman times also brought about the necessity of each separate community maintaining in their temples set apart for those purposes the "vestal fires," which burned day and night, tended by the vestal virgins, and to which temple the ancient Roman had to proceed whenever he wished fire for his domestic purposes. In this connection we first hear of the concentration of the sun's rays for purposes of ignition, for history tells us of the peculiar beneficent effect on the sympathies of the deities, of fire produced by focusing with concave mirrors the rays of the sun. The dentist of modern times occasionally wonders, while his lungs are filled with sulphur, and his operating floor with burnt matches, whether, after all, we are so very much ahead of these ancient peoples.

In this connection, electricity comes to our aid, and the "lucifer match-less" dental office can be simply and easily attained.

The electrical principle, which is usually used to attain this end, is called the arc, and this phenomenon is noted when an electric current of adequate volume and pressure is passing through a circuit, and an arrangement is inserted in the circuit whereby the passage of the current can be made and broken at will by means of two electrodes, made of carbon, soft iron, or any other suitable metal or substance, mechanically mounted so that the electrodes can be brought together and drawn apart. The electric current will leap across the gap, at a temperature which is sufficient to ignite combustible gases. The explanation of this phenomenon is that, at the point at which the electrodes are brought together, the current commences to flow at considerable resistance, unless they are tightly pressed together. The resistance generates sufficient heat to vaporize some of the electrode, and, when the points are drawn apart, the space is filled with vapors of the material employed in the electrode, which mixture of air and vapor of course carries the current on account of its being a much better conductor than air, with great evolution of heat and light in the form of an electric arc. It seems strange to speak of substances such as carbon being volatilized, but the possibilities of the electric arc seem to be

great in this direction, in fact recent experiments in France have obtained a temperature of between 5,000 and 6,000 deg. F. It is on this principle that the manufacture of corundum, the manufacture of calcium carbide, electric arc illumination, the ignition of gases in many internal combustion engines, and many other processes, depend.

The electrical supply conditions in Ontario are chiefly as follows:

- 114-120 volt direct current.
- 114-120 volt alternating current.
- 228-230 volt direct current.
- 228-230 volt alternating current.
- No current at all.

The first named, the 114-120 volt direct, presents the least difficulty in adapting for sparking purposes. Two 32 C.P. lamps are inserted in the sparking circuit in what is technically known as multiple series, and the spark keys are wired in parallel as in Fig. I.

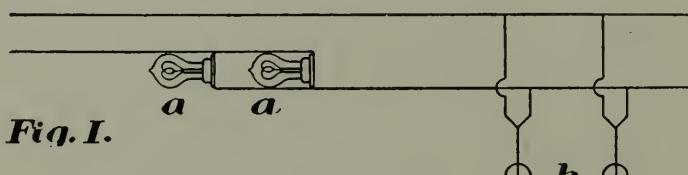


Fig. I.

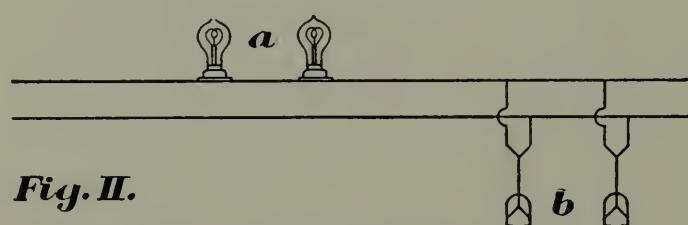


Fig. II.

FIG. I.—Wiring arranged for the ordinary 114-120 volt circuit.
FIG. II.—Wiring arranged for the 228-230 volt circuit.

At this point we might digress in order to describe a simple spark key or sparker. (Fig 2.)

A piece of spring brass about 1 inch wide and $3\frac{3}{4}$ inches long is bent in a circular form, as shown in Fig. 2, and to it are attached plates of vulcanite or non-conductive fibre about an inch wide, and $2\frac{1}{2}$ inches long. At a point about $\frac{1}{2}$ inch from the free ends of this U-shaped piece, two screws are fitted in so that their heads will touch when the sides of the sparker are pressed. These screws are held in position with lock nuts, which serve to engage the free ends of the electric spark circuit. This is a simple and easily made key. A better one is manufactured and sold by Mr. Major, Toronto, who has kindly loaned one of them for demonstration.

In the case of the 228-230 circuit direct, or alternating, good results can be obtained by wiring the two 32 C.P. lamps in series

instead of multiple series as for the smaller current. (See Fig. 3.)

In the case of the alternating current at 114-120 volts pressure, the system described for the direct current at the same pressure is not satisfactory, for the reason that the passage of the arc between the separated points of the sparking instrument is interrupted for an infinitesimal space of time at the point at which each alternation, or change of direction of the current, takes place. It can be readily seen that this means a great deal, for currents in commercial use run from 6,000 to 16,000 alts. a second, which means that our igniting arc is interrupted from 100 to 266 times a second. For this reason, the arc from an alternating current of this pressure gives a fitful and unreliable spark of low igniting power.

The use of transformers or instruments for changing the alternating current to the continuous or direct current is somewhat limited at the present stage of electrical development, for the reason that these instruments are quite cumbersome and ex-

Fig. III.

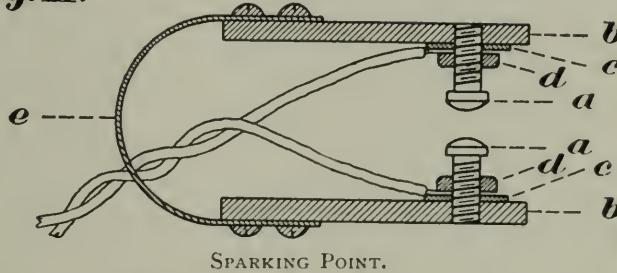


FIG. 3.—(aa) Metal electrode, screwed into fibre; (bb) non-conductive sides of sparker; (cc) washer; (dd) lock-nut, which serves to hold also the flexible cord; (e) brass spring.

pensive, although the discovery of Mr. Peter Cooper Hewitt, of New York, of a mercury transformer for charging the storage batteries of electric automobiles seems to indicate that in the near future this method may be practicable.

However, for those who have not suitable current for sparking purposes, the spark mechanism on the ordinary internal combustion engine, or to take a common example, the ordinary automobile engine, furnishes us with a reliable method for ignition. In these engines it is accomplished in two ways, namely, the "make and break," and the "jump spark." The first named is simply an example of the electric arc, and is mechanically produced inside the cylinder by means of two soft iron (or other material) points, suitably insulated, which touch and are drawn apart at every explosive revolution of the engine. The current for this is produced by six "Columbia" dry cells, and a spark coil in series, and with the sparking points wired in parallel, as in Fig. 4, a very efficient apparatus for dental purposes is obtained at a reasonable cost, and will last without renewal of batteries for a year or more. Even after they are exhausted they can again be used by stripping

off the card-board covering and punching holes in the zinc sides of the cells and immersing in battery jars containing the sal-ammoniac solution ordinarily used for the LeClanche cells. This treatment is said to prolong the life of the cells to a considerable extent.

For the use of batteries, however, the spark key described in Fig. 2 is not at all satisfactory. The best results from a battery current are obtained from the contact of the electrodes in a brushing motion, something like the passage of the two blades of a pair of scissors. For this system, the outfit, the connections of which are described in Fig. 4, has proven satisfactory and is simple and cheap. The batteries and sparking coil cost \$2.60, and any dentist can rig up the rest with some bell-wire, and a little brass wire. Any number of burners can be fitted with ignitors from the one coil and batteries, and, as illustrated in Fig. 4, one point will light, say, all the burners in the laboratory, with the wiring described in Fig. 4, and having the point J within reach of all the burners. The brushing points for produc-

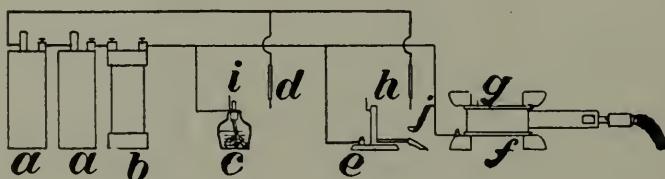


FIG. 4.—Showing connections for a brush-spark system operated by batteries; (aa) batteries; (b) spark coil; (c) connection made with spirit lamp, operated by point at (d) (e) and (f), Bunsen and Fletcher burners, respectively, operated by the same brushing point at (j); (g) (h) and (i), fixed electrodes on burners, by means of which the spark is obtained by a brushing motion from the brushing points at (d) and (j).

ing the spark are simply pieces of brass spring wire, about 20 gauge, B. and S., soft soldered to the terminals, and mounted on non-conducting handles. The fixed connections on the burners are simply pieces of brass wire a little heavier, attached to the lamp, and in the most convenient way connected with the end of the circuit other than that to which the sparking point is attached. If the wiring is carefully done and the joints soft soldered and well insulated, a most efficient and useful piece of apparatus is the result.

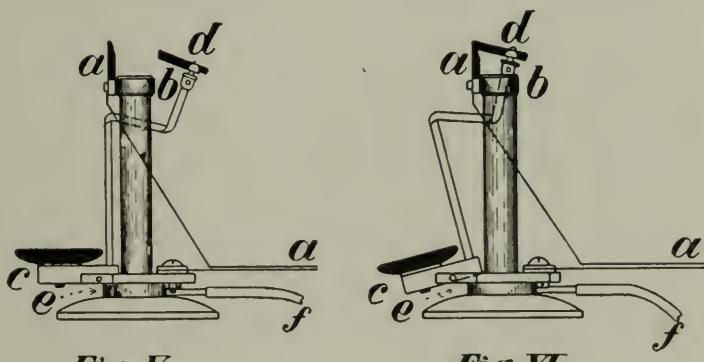
The jump spark is commonly produced by passing the current from about four large dry cells through a Rhumkoff coil, such as can be obtained at any electric supply house or automobile agency. This changes the voltage of the resulting current to such that if the circuit be broken and the ends be held a short distance (say, $\frac{1}{8}$ -inch) apart, the current will jump across the gap in the form of a spark, with considerable igniting properties.

This system can be used in the manufacture of an exceedingly neat and useful self-igniting burner by placing the points

at where the circuit is broken, just at the side of the lamp, where it would touch the outer mantle of the flame. These points are suitably supported and insulated, and when the gas is turned on the handle presses the two wires which produce the current, and the gas is ignited and turned on in one and the same operation.

The principle of the arc can be also used for this purpose by having a small rocker arm on the burner, to which is attached an upright, which bears one of the sparking points. The other point is suitably insulated, and when pressure is applied to the handle the moving point is brought towards the fixed point, and when the pressure is released, the result is an arc which ignites the gas. It is, however, necessary to turn on the gas in this case.

In conclusion, a few words of caution as to the use of sparking mechanism may be appropriate. In the use of the street currents, the chief difficulty is what is technically called "grounds,"



BRACKET TABLE LAMP.

FIG. 5, 6.—(a) Insulated from rest of lamp at metal collar; (b) (c) insulated handle with spring release at (e) (d) electrode; (f) gas supply.

or the passage of an electric current from its circuit to the earth, or a large metallic mass, such as a dental chair, etc. This great tendency of the current to travel toward the earth finds expression in electric discharges during a thunderstorm, the discharge of current when a trolley wire falls to the earth, and many other instances. The most efficient medium for an electric ground is the system of water and gas pipes found in a dental laboratory. Therefore, in using sparkers operated from the street current, all gas pipes and water pipes should, within reach of the sparker, be covered with asbestos, or other non-conductive material. Care should also be taken not to prolong the arc too long, as the parts of the sparker become heated, and their value impairs. In the case of the use of batteries, they should be kept in a cool and dry place, and the connections all soft soldered. Care should also be taken not to impair the life of the batteries by short-circuiting by dropping an instrument or any electric conductor across the terminals. With these few precautions and a well-installed system, the wear, tear and swear of average dental practice ought to be visibly diminished.

TUMORS OF THE ALVEOLAR BORDERS OF THE UPPER MAXILLARY BONE.

By A. A. LANTIER, D.D.S., QUEBEC, CAN.

May I presume to interest this convention by reporting a case of tumors of the alveolar borders of the upper maxillary bone, the like of which I have never met during the course of twenty years of practice, nor seen described in any of our special literature.

Miss P. F., a young lady, aged twenty-two years, a French-Canadian, living in Quebec, called at my office on January 5th, 1905. At eleven years of age she noticed in her mouth two small tumors, rooted and developing simultaneously and symmetrically without pain, on the inner or palatine borders of the alveolars of the upper maxillary bone on both sides. When she called at my office, these tumors extended along and covered the alveolars on either sides, from the molar process, reaching forward to the spot which the bicuspids should occupy. They met without, however, adhering together, so as to completely hide from view the palatine vault. The left tumor is of the size of a pigeon's egg, whilst the tumor to the right is the size of an almond. Both are rounded, and the covering mucosa is not altered, but tense and of shiny appearance. On palpation they are hard and yet not osseous; fluctuation is easily detected; they never ulcerated or suppurated; the glands have never given signs of inflammation. The twelve-year molars and the wisdom teeth can be seen on the buccal sides of the tumors. In the front of the maxillary bone on the left side, slightly ahead of the tumors, can also be seen a cuspid. These teeth, although tolerably well shaped, are of a yellowish blue tint.

Antecedents.—Parents of the patient: Information obtained from the patient as to family history is very scanty. Her father was a sailor and died at thirty-five years, of consumption; her mother died at twenty-eight, of the same disease. She has only one brother, who enjoys good health.

Personal History.—Patient has always been ailing; she walked very late, and menstruated only at eighteen years of age. The first dentition was irregular; her permanent teeth, except those I have mentioned, decayed early, loosened, and fell out. Her facies tells of rickets, whilst her intellect is decidedly weak; her finger joints present deformities, her sight is impaired, her pupils dilated. The lower teeth are irregular, have no enamel, and are serrated: "Hutchinson's teeth."

Operation.—The patient agrees to an operation, which I perform on January 8th, 1905, with general anesthesia, by chloro-

form. I began by extracting the four molars and the cupid; then seizing one of the tumors with a hook forcep, I drew it aside, and, at the seat of implantation I made horizontal incisions parallel to the alveolar ridges, and removed the tumor easily. I proceeded in a like manner with the other tumor on the opposite side. With the dental engine, using a corundum wheel, I levelled the salient portions of the alveolar sockets; very slight hemorrhage followed.

Although I neglected at the time to get the tumor analyzed, a fact for which I had reasons to regret afterwards, I found that the appearance of the interior part of the tumor was similar to the ordinary gum tissues. After the operation I prescribed to the patient boracic acid mouth wash, and tannate of glycerine as an astringent. Reaction proved insignificant, a little malaise felt at the soft palate, but very little fever, slight swelling of the palatine vault; all these symptoms disappearing after a couple of weeks. The patient doctored herself during the course of a couple of months, returning to my office on March 8th. Much to my delight I found her perfectly cured. I then took a plaster cast of her mouth and inserted a set of teeth.

Now, gentlemen, strange as it may seem, I close these data without drawing any conclusion. Having had no analysis of the tissues made, I am not prepared to say what might be the nature of these tumors, or in what category they might be classified. I, therefore, have the honor to submit this case to the distinguished representatives of the dental art for an opinion.

Selections

RIGGS' DISEASE, SO CALLED.

BY B. F. ARRINGTON, D.D.S., GOLDSBORO, N.C.

There are various theories as to the cause of the very prevalent and troublesome disease spoken of as Riggs' disease, or pyorrhea alveolaris, but more commonly known and spoken of by the masses as scurvy of the teeth and gums. Some writers mention numerous causes, local and constitutional, and discuss extravagantly the distinction, and in so doing mislead hurtfully.

Leaving cause out of the question, I have advised, and practise accordingly, to diagnose carefully to determine disease, then treat to check progress and effect cure. This done, all is done that can be expected or required of us as practitioners of dentistry.

Whether the treatment administered is on conservative moderate lines, in accord with nature's requirements, best preserving soft tissues and osseous structure intact, as reason and sound judgment dictate shall be done, with due regard to the physical comfort or discomfort of patients, or on lines more radical and heroically extreme, as if it were a cancer under treatment, the result, a cure, is the important consideration that must be striven for and attained if possible, and upon lines humane and reasonable, for it is not cancer, nor is it really a difficult and serious trouble to treat. Sundry types of the disease are mentioned by various writers on the subject, and treatment varied accordingly, but such are speculative and unreliable. There is but one true type of the disease, and that the effect of *one cause*, and it never varies in outline, but well defined diagnostic features always present to aid and guide in recognition and treatment. The disease commences at margin of gum, and if not treated and checked will progress to loss of teeth. Some speak of the disease as advanced to stage of pus discharge and loosened teeth with no deposit to be found on roots. This is simply an absurdity. In all true cases of the disease, wherever pus is found deposits are always to be found, and there will be no cessation of pus discharge until deposits are removed, and when removed properly and thoroughly the trouble will in many cases cease without further treatment; but not so speedily as when treatment follows. I will briefly outline a moderate, simple line of practice that I have pursued for some years that has given results satisfactory to myself and

patients, and the same will be easy of execution by most dentists.

First diagnose carefully, and when the question of disease is settled, and no need for further questioning on the subject, test for osseous support of teeth in the sockets. If as much as two-thirds or three-fourths of the alveolar process is wasted *as a result of the disease*, extraction is advisable, as it is impossible to produce new growth of process for support of loosened teeth; therefore, wisest to extract, whether one tooth or a dozen. Then look after the roots, if any, and remove all that are not firm in sockets and cannot be made useful, and then proceed to remove deposits from roots of teeth with smooth-edge scalers, shaped and tempered for effective work. The good judgment and fancy of operator as to shape and mode of application of scalers must guide in the execution of the work.

The removal of serumal deposits from roots of teeth (never found on the crowns) must be thorough, as upon this operation in treatment will hinge success or failure in result. After removal of deposits, brush and cleanse teeth as perfectly as possible with dilute sulphuric acid and pulverized pumice stone. After use of brush, use sticks of soft pine or orange-wood shaped to suit, to reach, if possible, all exposed surfaces of crown and root structure. Strength of acid solution varies from one of acid to eight, ten, fifteen, or twenty of water, according to age of patient and condition of soft tissues and alveolar process. The acid may be applied fearlessly, as no evil results will follow its application, at least such has been my experience in the free use of it in treatment of this disease for nearly fifty years.

After application of acid and pumice force water with bulb syringe between and around the necks of teeth and into the pockets for the effective removal of the pumice powder and any detached fragments of deposit, and have patient to rinse mouth thoroughly with water until freed of all foreign substance, after which instruct in the use of finger pressure on gums and the use of brush with plenty of water in mouth, a very important requisite in the care of teeth and for the preservation of healthy gums, and should be freely indulged; also washing top of tongue as a life practice for prevention of germ development and for freedom from fetid breath. Then apply to the gums freely campho-phenique, or a saturate solution of spirits of turpentine and gum camphor, and request patient to use brush with plenty of water in mouth regularly after meals, and to apply finger pressure on gums several times daily until they are healthy and firm and fit close to teeth. Advise that not a single brushing must be omitted until cure is complete, for it is this feature in treatment that restores gradually to a state of health, and it is more important and reliable for good results than all the medicinal nostrums now in use.

The second or third day after the removal of deposits make

a careful inspection to determine if the removal was thorough, then reapply campho-phenique or turpentine, also at second sitting five or six days later, and dismiss with repetition of instruction regarding brush, water, and finger pressure. If instructions are followed there will be no return of disease, and a healthy mouth in most cases the result.

In mild cases a cure can be effected in eight or ten days. More extreme cases require from two to three weeks, and some a little longer. Not one case in forty ranging from incipiency to typical stage will fail of satisfactory result if instructions for care of teeth and gums are followed, and not one in fifty will prove a success and give satisfaction if instructions are not followed. The disease is the effect of neglect; therefore care for prevention is requisite.

The disease is unquestionably the effect of putrefying decomposed germ-producing impactions between and around the necks of teeth, a result following the exercise of eating (mastication of food) and neglect in use of means to keep the mouth cleanly, a feature of neglect that will possibly continue through all time, with results the same, like causes producing like effects. Therefore the imperative necessity for daily free use of tooth-brush and water after meals to prevent accumulation of impactions that cause the trouble.

The disease is variously named—Riggs' disease, pyorrhea alveolaris, interstitial gingivitis, and numerous other names quite as inappropriate and unmeaning. And, after all, it is nothing more nor less than has been recognized and called by physicians and laity for generations past *scurvy* of the teeth and gums, a disease that possibly antedates the earliest historic record of the human race (no recent new disease). It can easily be traced back to the Egyptian period, and it is nothing more nor less now than it was then. Now we are troubled about it and want to be rid of it, then there possibly was little or no thought given to it, accepting it as a feature in physical organization, as some now do, and not to be cared for or complained of.

The question that now confronts and most concerns us is this, Is the disease detrimental to health, and is it amenable to reasonable treatment with promise of good results? It doubtless is detrimental to health in many cases, not universally, but frequently. It is amenable to successful treatment on simple lines of procedure, as most dentists will realize and can verify if they will but take hold and treat and persevere rightly on conservative lines, laying much stress on the subject of prophylaxis, for that must be the foundation corner-stone of curative and preventive treatment. To will is to do, and one dentist can as easily as another advise rightly for prevention of this disease, and can treat and cure it effectively after once commencing and being successful in a few cases. The good results following treatment

in a few cases will captivate, stimulate, and encourage persistent effort until the mountain of difficulty is removed, and then plain sailing in treatment of the disease will be seemingly and practically easy work; and every dentist may soon become his patron's own specialist in treatment of the disease, Riggs' disease, scurvy, or whatever else we may feel disposed to call it. The name matters not, so we rightly recognize the disease as a disease of one cause and treat it successfully.

The important feature for success in treatment with new beginners is for each to determine to lay aside all prejudice and preconceived ideas of necessity for extreme radical treatment, and to discard from mind, if possible, all recollection of extravagant, long-spun theories about cause and treatment and come down to a plain, practical, common-sense line of work and treat to cure, and cure will be the result and reward, and the profession will be advancing to a higher plane and a more enlarged sphere of usefulness; and this much abused, neglected and misrepresented disease, the most prevalent known to man, will be easily under control through simplified treatment, and there will be much less writing about and discussing it. As evidence that the disease is the effect of environment and always commences at the gingival margin, the relation of a few facts ought to suffice for conviction. The disease is but seldom or never found in mouths carefully cared for, mouths in which brush and water are freely and frequently manipulated with a view to cleanliness and healthfulness, especially if the brushes are of the right type and make, not very large, bristles of medium texture, good space between rows, with serrations extending half the length of bristles. The disease is universally more common in rural districts remote from easy access to dentists than in cities and towns where dentists prevail; less of the disease in families educated to care for the teeth through prophylactic treatment than in families neglected. The disease in its incipiency is always first discovered on gum margin, and from that line points towards apex of roots. These are indisputable facts, which if reflected upon and rightly studied ought to put us into right line and drift for safe treatment that will check and eradicate the disease to a very great extent, except with that class of persons indifferent to principles of prophylaxis and health preservation, and some of such we will always have with us.

Prophylaxis should be our alarm cry, and we should keep it sounding until effect is produced and is perceptible all along the line through the improved condition of teeth and gums. Then the human family will be blessed, much of humbuggery in dental practice will cease, and dentistry of the nobler and better type will prevail and will be liberally applauded, and there soon will be but little said or heard of Riggs' disease, pyorrhea alveolaris, or interstitial gingivitis and the like.

The many fine-spun sensational theories and unreasonable

practice long indulged will vanish and possibly be forgiven and forgotten, gentle quiet will prevail, and general good work will go on in treatment of Riggs' disease, so called, as in other lines of dental practice, and all will be well, with an upward, onward tendency to a truer state of excellence.

When I have treated a case of the disease in question, I advise the discarding of all mouth-washes, creams, etc., for none are effective for good and none are needed if the use of brush and water is strictly practised. Not one of the many on the market will prevent or check the trouble if used daily or hourly, nor will they keep it in check after treatment is administered, nor will a single one of them destroy germs in the mouth.

Why, then, the use of them? Brush and water freely used is the best and surest stimulus for the gums and for the removal of impactions and the destruction and getting rid of any excess of germ product with which the mouth may be infested. The remedy is easy of application and is non-expensive. If mouth-washes and creams are at all relied upon, the use of brush and water is apt to be slighted. That fact alone should justify discardal.

As regards the cause of this disease, my theory, though not established and accepted, is, I think, reasonably plausible, and sooner or later may be accepted by men who think on the subject and investigate for truth. All theory must be sustained by truth established through investigation based on reason and sustained by natural laws or the theory amounts to nothing.

As above stated, the disease is the effect of environment—that is, the impaction of a conglomerate mass of masticated substance around the necks and between the teeth, impaction upon impaction, day after day and week after week, without effort to dislodge and remove it. This impact confined in moisture with a high degree of temperature, ninety-eight degrees and sometimes higher, a favorable state of things for putrefaction and poisonous production, aided in virulence, possibly, by some special property in the saliva under certain conditions, with possibly a secretion from glands not yet revealed to us, which, when brought in close proximity with the pericemental membrane at the gum margin, produces irritation and inflammation; then follows serumal-granules and incrustations on the cementum, consequent pus and waste of membrane and alveolar process, to loosening and loss of teeth, the final windup and finishing result. So it was in Adam's day, possibly (reasonably probable), and has come down to the present time as one disease, the effect of one cause, environment from mastication and neglect of duty in care of mouth. The trouble doubtless will continue on through time with certain classes of all peoples, the same cause producing the same results. But results can be treated and health restored and unfavorable results prevented by timely prophylactic treatment, commencing with children and

continuing to middle adult years, say to the age of forty or forty-five years, beyond which period I cannot now recollect that I have ever seen a case of the disease in its incipiency. It is a lamentable fact and humiliating to relate, nevertheless true beyond the possibility of truthful contradiction, that not one person in fifty upon an average cares for and preserves daily a cleanly, healthy state of mouth, free from offensive taint, the effect of neglect. Whether such a state of things shall continue to exist is for honest, conscientious dentists to decide. With the lights we have to direct and guide us at this early period of the twentieth century, we should before the century is half advanced accomplish a noble work in shaping and establishing upon prophylactic principles a line of treatment for the preservation of the natural teeth and a healthy state of the gums, accepting and proclaiming the *tooth-brush* (much improved as need be) the chief agent as health factor, and one which should be placed within the reach and at the command of all, old and young, with instruction when and how to use to the best advantage for the preservation of the teeth and avoidance of the ravages of scurvy, or Riggs' disease, so called. No dentist now engaged in practice will sustain any loss by decrease of patronage by the revolution feature, and the reformation pending, and the better state of things hoped for, as of necessity several decades must elapse before the good work develops into a practical success and is in good working trim for grand results; therefore all may safely combine and harmoniously co-operate in effort with hearty good will to make the reformation a grand success for humanity's sake, and for the credit of our profession.—*The Dental Brief.*

GOLD INLAY SUGGESTIONS.

BY W. H. TAGGART, CHICAGO.

For gold inlays, I take an impression with modelling compound and pour into it Mellotte's metal. You can pour Mellotte's metal into the modelling compound and not melt it. It will give a good sharp outline. On this I do the first part of the work, turning the difficult angles with 34 gold and then carry the matrix to the mouth.

As to the preparation of cavities, I like to have in the cavity a number of good round depressions that dip down so as to prevent sliding. Take 34-gauge gold and burnish it into all these depressions, and if the gold tears at these points put a little sticky varnish over the place and force a roll of crystal gold into it and you can lift out the matrix in its proper form and flow solder over it.

The point made by Doctor Thompson, and referred to by Doctor Fernandez, about the hollow inlay giving a better chance to burnish the margins after it is seated, I do not think holds good, because there is just as much solder about the part you expect to burnish as there would be if the whole thing was soldered. You ought not to rely at that stage on any further burnishing. The filling should fit before that. You have a larger body of cement in a hollow inlay than in one that is solid, but the actual contact of your inlay with the tooth substance is a big item in the way of retention.

In reference to a one end abutment for a bridge, I have had satisfaction in doing that. An inlay will do if you had one large enough and the cavity is in a pulless tooth. It would allow the bulk of gold to go into the pulp chamber, and give good retention; but if the tooth is alive I can get retention in the walls by means of pins of the size of the tooth pin. You can use platinum pins, gauge No. 19, for this work. I sometimes put in four or five in different positions over the surface of the cavity in an accessible place.

A great many dentists make a mistake in using Mellotte's metal in trying to get it thin or fluid-like, so that it will run in fine corners. Mellotte's metal wants to be in a cheesy state, so that you can take it up with a spoon, and not in the melting stage because if you pour it in the melting stage there is a tendency for it to become globular, whereas if you use it as you would take up a handful of melted snow and pack it in, it will give a sharp outline. In fact, it will give the outlines of the marks of your fingers.—*Dental Review*.

THE CLARK DENTAL BILL OF ILLINOIS.

By JOY L. FRINK, D.D.S.

The above-named bill became a law Wednesday, May 17th, when Governor Deneen attached his signature to the measure. That the decision arrived at after patiently listening to both sides of the controversy was a wise one there is no doubt. That dentistry in the State of Illinois will be better for this bill there is every reason to believe. The gentlemen who so persistently and earnestly labored for it, both in the house and in the executive mansion, are to be commended not so much because of what they accomplished, but for the reason that their methods were clean and honorable throughout, and that they did not resort to misrepresentation and untruths. These facts stand out prominently when contrasted with the means employed by those who opposed

the bill. Through misrepresentation they induced a number of dentists to work against the bill who, if they had been better informed, would have gladly welcomed the protection afforded by it.

There is nothing in the measure prohibiting the display of advertising matter in newspapers or elsewhere; if there were, the bill would be unconstitutional and would never have been signed by so eminent an attorney as Governor Deneen.

The part of this bill which provides that a dentist must practice under his own name and must "deliver the goods as advertised" will be a hardship to no honest man, whether he be an advertising or an ethical dentist.

The stand taken by some of the country newspapers was a disgrace to journalism; a profession so potent for good or evil. These sheets were candid enough to admit that their object in opposing a bill endorsed by 90 per cent. of the dentists of the state and having for its only object the protection of humanity, was the monetary consideration. Thus for the small sums received from this class of dentists they would subject humanity to butchery by incompetent dentists, a condition of affairs sure to follow the failure of the protection afforded by proper legislation. That their apprehension was unfounded there is no doubt, as the only effect the present law will have will be a more careful wording of the advertising matter used and the newspapers will still receive revenue from this class.

Not all ethical dentists are perfect, nor are all advertisers rogues, but let all hope that the new law will act as a curb to every dishonest member of the profession, no matter to which class he may belong. Dr. P., a dentist who had been practicing in a small town, consulted us regarding a city practice; as his means was limited we advised a situation as assistant to some city dentist as the first step. The Doctor procured a position with Dental Parlors, but after having worked one day he resigned the position and related to us the following story, which we had and still have no reason to doubt: A patient called; occupation, servant girl; teeth in healthy condition except accumulation of salivary calculus around necks of anterior and inferior teeth; patient was advised by "contract man" that she had so neglected her teeth as to make it impossible to save by filling and advised the cutting off of teeth and crowning, which was done. It is to be hoped that the new dental law will be a means of preventing murder of this kind, and God speed the day.—*The American Dental Journal.*

DIED IN DENTAL CHAIR.

Mrs. Thomas Dowson, of Stanley Township, died in the dental chair of Dr. R. R. Ross's office, Seaforth. Mrs. Dowson came to town with her sister to have a number of teeth extracted. They were accompanied by Dr. Rodgers, of Brucefield, who came to administer chloroform. Before giving the anesthetic the doctor examined the patient and found her in good physical condition. The anesthetic was successfully administered and the teeth had just been extracted when the patient, who had previously been breathing regularly and healthfully, sighed and without a moment's warning expired. Dr. Rodgers, who was with her during the operation, did everything possible and additional medical assistance was quickly procured, but the patient was beyond human help. The deceased was a young woman of about thirty years and apparently in previous good health.

A STAPLE CROWN.

BY R. M. SANGER, E. ORANGE, N.J.

Dr. F. L. Marshall, of Boston, describes his method, which he calls a staple crown, about as follows: With an enamel fissure bur cut grooves in the mesial and distal surfaces of the tooth just back of the contour, as deep as the fissure bur, then connect these grooves across the tooth by the use of an enamel bur, making this groove as deep as the other two. If the articulation is very close, grind off enough to allow for the thickness of the gold. Then knife-edge your tooth from the cross groove to the edge, as you would an artificial tooth before backing. Next select a piece of platino-iridium or 22-karat gold wire, a trifle smaller than the fissure bur, bend a right angle on the end long enough to fit one approximal groove, take the distance across the tooth between the grooves and bend another right angle in the wire, thus forming the staple which gives the crown its name. Cut the ends of the staple the proper length to fit the grooves and allow the cross-section to be flush with the palatine surface of the tooth. A piece of pure gold is selected, a little larger than the crown, and one side of the staple is held against it, at right angles, with a pair of pliers, and it is caught with a little 22-karat solder. It is then placed in position on the tooth in the mouth and the gold burnished down to fit the lingual portion of the tooth and the approximal surfaces sufficiently anterior to the staple to allow of burnishing. Remove carefully and solder the staple to the crown around its entire length. Now replace the crown in the mouth and burnish

carefully to place, trimming off all unnecessary gold. When a perfect adaptation is obtained, the piece is carefully removed and the outside is overflowed with solder to give rigidity; the entire free edge, however, to about the width of one-thirty-second of an inch, is kept free from solder to admit of burnishing when the final placing is done and before the cement is hard.

The Carmichael method, as I understand it, is about the same as the foregoing, except that the gold is burnished into the groove instead of using the staple.—*International Dental Journal.*

Proceedings of Dental Societies

ELEVENTH ANNUAL CLINIC OF THE CHICAGO COLLEGE OF DENTAL SURGERY.

The eleventh annual clinic of the Chicago College of Dental Surgery will be held at the College Building, Chicago, Jan. 17th and 18th, 1906. This meeting will be a reunion of graduates of the College regardless of the fact that they are members of the alumni.

A very excellent programme is being arranged, consisting of papers with discussions, clinic and a banquet. Rates on all railroads, one-third fare, have been arranged for on the certificate plan.

Yours very truly,

RUDOLPH BECK,
President.

LAMBTON COUNTY DENTISTS ORGANIZE.

At a largely attended meeting held in Sarnia, December 4th, the dentists of Lambton County organized the "Lambton County Dental Association" with the following officers: President, Dr. W. F. B. Colter, Sarnia; Vice-President, Dr. G. A. Walters, Forest; Sec.-Treasurer, Dr. J. E. Wilkinson, Petrolea; Executive Committee, the officers and Drs. Thornton and C. F. Colter, Petrolea; and Kinsman, Sarnia.

Archivist, Dr. F. B. Kenward, Watford; Dr. Jas. F. Wood of Sarnia, and Dr. C. Colter, sen., of Petrolea, the two remaining pioneers in the county were made Honorary Presidents. The Society will meet the first Monday of each alternate month, the first meeting to be held at Sarnia the first Monday in February, 1906.

Dominion Dental Journal

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THE RELATIONSHIP OF THE DENTIST TO THE GENERAL PRACTITIONER OF MEDICINE.

In *The Medical Times* of New York appears the following editorial which is of special interest to dentistry just now when there is a tendency towards broadening the sphere of the dentist. The days of the dentist who knows no more than the mechanical side of his profession are numbered. It is gratifying, indeed, to see an article like the following as the leading editorial in so prominent a medical journal. It is a recognition of the very important part dentistry has to do with prevention and cure of disease.

The fact is at last recognized by advanced dentists that dentistry is a specialty of medicine, although curiously enough, it is the only specialty not requiring the degree of doctor of medicine. Until now dentistry and medicine have been studied separately; but this is a serious error, for in the mouth, as pointed out by Carlton in a recent issue of the *Journal of the American Medical Association*, begins all the processes of nutrition and metabolism which have grown so important in recent years. Neither physician nor dentist has given enough study and investigation to this

region and neither knows what the other profession is doing or learning.

As surgery started with the barber, so dentistry at first was undoubtedly the extraction of aching teeth. The Germans still voice this restriction, for a German dentist is simply a "tooth doctor." On the contrary, this science now modernized requires a correct appreciation of pathology, physiology and bacteriology. As Carlton says, "Dental science has brought the disease of the mouth, jaws and teeth so obviously under the domain of general pathology, that somatic problems elsewhere presented in the body are best and easiest studied in the mouth." Again, manipulative skill is more largely demanded of the modern dentist; to do his patients justice he should be truly a dental surgeon.

Unfortunately the dental schools as yet are not ready to recognize this advance in their profession. They know it exists, but competition is great and the students will go where courses are the shortest. The National Association of Dental Faculties has not accepted the four-year course or raised the standard and has in consequence struck a severe blow at the dentist's advancement.

No better rallying standard for dentists to follow has ever been promulgated than that written by Carlton when he wrote: "The dentist of to-morrow cannot be the same sort of man as the dentist of the past, whose own little sphere has been bounded by thirty-two teeth. He must be the carefully educated student in the medical branches, plus the dental specialties, and you can only make him so by following the same educational plan as in preparing the doctor of medicine. Without the requisite medical education, the ordinary mechanically expert dentist is not competent to practice his profession—he can only exercise a mechanical dexterity, but with the proper education he not only exercises the same dexterity, but he has professional ability. The mouth is a good barometer of the whole system, but your merely mechanical man, as contrasted with the dental specialist in medicine, is not competent to read it, and he does not. Why? How can any man untrained in medical science understand the problems presented to him in the condition of the mouth? We all know how exceedingly often some affection of the mouth or teeth is but an indication of a general systemic disturbance of metabolism; and, on the contrary, how frequently we see a faulty dental anatomy causing nutritive derangements which are puzzling to the physician who is ignorant of the large part played by the mouth in general alimentation. These things cannot be comprehended by the merely mechanically trained dentist, as distinguished from the dental specialist, any more than they are intelligible to the physician whose training has omitted all reference to the mouth as a vital part of the alimentary canal. He who would in the future confine his professional work to conditions involving the mouth and teeth—the dental specialist—must be a broad diagnostician; he must know the relation of the mouth to the general system and he must interpret what he sees in the mouth in the light of his general medical education."

Correspondence

To the Editor of DOMINION DENTAL JOURNAL:

In a recent issue of your journal appeared an excellent letter advocating the consideration of the subject "Public Instruction in Oral Hygiene," by the Ontario Dental Association and the publication of a pamphlet embodying the modern views concerning care of the teeth. The high ground of professional duty, which Dr. Gowan takes, must commend itself to all those who have the true professional spirit, and who believe that there are certain responsibilities attaching to a profession incorporated and protected as it is by law that it may render service for the public good.

Any profession worthy of the name (and not a mere money-making business) must lend itself to self-destruction. The lawyer should aim to simplify the laws and keep people out of legal disputes; the physician, to discover the cause of disease and so prevent it; the clergyman to hasten the millennium when there shall be no need of his influence to keep people from doing wrong; and the dentist to create such an environment that his services shall not be required. Only by such forgetfulness of self and consideration of the welfare of others can we, like Buddhists, attain to our professional Nirvana. This is the *ideal* towards which we should strive.

Public instruction in oral hygiene is one step towards that end. It would probably be difficult to find anyone opposed to such a measure (in theory), but I am assured that, in practice, in the performance of those services for the public which must be rendered gratuitously, if we would appear to practice what we preach, part of the profession in this city at least are not in sympathy with, if not openly opposed to, any efforts for the supervision and care of the teeth of even charity patients. Any steps in that direction are regarded as infringements of the rights of private practitioners. In proof of this let me point out the hostile criticisms that have been made of the College Infirmary. (By the way, I believe it is able to show an annual surplus, too.) In theory, we believe that the proper care of the teeth reacts on the health and comfort of the public, and for six months in the year the poor of this city are carefully tended and treated. But, when they are no longer needed for clinical material or for experimental purposes, microbes and little devils take them! or, let them go to a dentist and pay for his tender services, or, if they cannot pay, the foul fiend take them! Few dentists in practice have the time to devote to much of this charity work and so, in spite of our preaching about the awful misfortunes that are in store for these sinners against nature, they rot before our eyes and we pose as public benefactors and wonder why we do not receive the thanks of our fellows. Do we not tender them much gratuitous *advice*? What would be thought of the medical profession if the hospitals closed

up their out-door dispensaries and other departments of charitable work as soon as the college term had ended and they no longer needed this clinical material? Would not public opinion rightly suspect that the physicians have about as much interest in the public welfare as has the plumbers combine? Is there not something of the illustrious Mr. Pecksniff about us?

Here in Canada I believe we have an opportunity, not presented elsewhere in the world, of dealing with this question of oral sanitation. The profession is a unit with one governing body at its head. There are no proprietary schools which must pay dividends and therefore cannot afford to be set on a philanthropic basis. There are no interests that clash.

With the four years' college course more clinical material must be provided. The course must be broadened and deepened in its theoretical and in its practical sides. Private members cannot be expected to further sacrifice their practices for the benefit of students, nor would it be fair to students to compel them to put in time which in many cases would conduce little to increase their skill. Unless the four years are filled with ample opportunity for development in all lines, the men who graduate will not have that mental acumen or breadth of scholarship which commands respect, and the profession at large must suffer. At present, under the indenture system, there is a wide diversity of opportunity. Some students have splendid chances for learning all the niceties of dentistry, while others at graduation are not as well fitted for practice as an ordinary mechanical man. This should surely not be left to chance. The responsibility of caring for the needy and at the same time providing the necessary opportunities for student practice rests with the profession at large.

And what is the remedy? Keep the infirmary open all the year round. Even the proprietary schools do that much. Further than that, would it not be in keeping with our professional responsibilities to open dental infirmaries in all the principal cities of this Dominion, perhaps in connection with existing hospitals. I am sure that plenty of students would jump at the chance of a position in such institutions where the opportunities for extended practice would be much superior to those offered in the dental office. There would then be an end of the annual excursion to Uncle Sam's land of our brightest and most energetic students in search of just such opportunities to gain experience. I believe, too, that the local dental societies could secure enough competent, public-spirited men to take charge, just as scores of medical men are giving much of their time to similar charitable work. It might be possible to make them self-sustaining. If not, we would have an undeniable right to claim government aid. There would then be some excuse for busy dentists turning away those who are unable to pay. These public infirmaries would care for them; the busy dentist would be rid of much undesirable work; and the advertising quacks would lose a large section of their clientele.

At any rate, before we undertake to tender gratuitous advice to the public we should do something to show that we are sincere, that we know what we are talking about, that as a profession we

are striving to eradicate disease, relieve suffering wherever found, and not "to make money out of the misfortunes of others." Until such time that we have thus earned the confidence of the public, any pamphlet or book scattered broadcast would savor strongly of the charlatan, and be liable to belittle, rather than enhance, the profession. It would certainly come perilously near that brand of modern advertising common to tooth powders, patent medicines, and quacks of all kinds. It is worth remembering, too, that free advice is not valued; the recipient always suspects a sinister nature.

Without considering the question whether such a pamphlet *could* harmonize the widely different views as to oral prophylaxis I doubt the wisdom of such a course, or of the accompanying suggestion, that special instruction and supervision should be given by dentists in our public schools. Official inspection of school children's teeth savors very much of paternalism and would at any rate have to follow medical supervision. People are not yet educated to the latter and we may safely neglect the former as a practical question. It is well known that the public school curriculum is now over-crowded, and there is hardly time to teach all the subjects. It would be difficult to convince the Educational authorities that they should crowd out any subject to make room for oral hygiene, the importance of which neither they nor we yet appreciate. Any instruction in this subject must be given through the teacher and in connection with the regular lessons in physiology. To secure the intelligent performance of this duty the teachers themselves must be trained. It would therefore be desirable to urge the appointment of Dentists to the staffs of our Normal Schools, to give lectures in conjunction with the present medical lectures in hygiene. With a physician as Minister of Education, we are certain of a sympathetic hearing.

C. H. CLARKSON.

501 Bloor St. W. Dec. 12, '05.

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